

Fast Reference Emission Document

Version 5
January 2003



**Ministry of the
Environment**

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

Fast Reference Emission Document

Version 5

January 2003

Cette publication technique
n'est disponible qu'en anglais

Copyright: Queen's Printer for Ontario, 2003

This publication may be reproduced for non-commercial
purposes with appropriate attribution.



Printed on recycled paper

ISBN 0-7794-4713-1

PIBS 1531e03

Preface

Anyone who intends to apply the Ontario data in this document to emissions projection, to program development, or to other significant analyses is advised to get assistance from Simon Wong at (416) 235-6123, or by fax at (416) 235-5818, or by mail to:

Simon Wong
Ontario Ministry of the Environment
Environmental Monitoring and Reporting Branch
Emissions Inventory Section
125 Resources Road, East Wing
Etobicoke, ON
M9P 3V6

Table of Contents

Acknowledgement	x
Abbreviations and Symbols	xi
Definitions	xi
Conversion Factors	xii
Introduction	1
What is FRED Version 5?	1
What is an Emission Inventory?	2
Accuracy of Emission Estimates in FRED V5	4
Sources of Data in FRED V5	5
Ontario	5
Canada	5
United States	5
Canada and United States	5
Next Update	6

LIST OF TABLES

Ontario

Table A1. Ontario SO ₂ Emission Trend by Sector, 1985-1999	A-2
Table A2. Impact of the Countdown Acid Rain Program on Ontario SO ₂ Emission Trends	A-4
Table A3. Ontario Hydro Fossil Stations SO ₂ Emissions Trend, 1980-1999	A-5
Table A4. Ontario NO _x Emission Trend by Sector, 1985-1999	A-6
Table A5. Ontario Hydro Fossil Stations NO _x Emission Trend, 1980-1999	A-8
Table A6. Ontario VOC Emission Trend by Sector, 1985-1999	A-9
Table A7. Ontario CO Emission Trend by Sector, 1985-1999	A-11
Table A8. Ontario PM Emission Trend by Sector, 1985-1999	A-12
Table A9. Ontario Standard Pollutants Emissions – 1985	A-13
Table A10. Ontario Standard Pollutants Emissions – 1986	A-14
Table A11. Ontario Standard Pollutants Emissions – 1987	A-14
Table A12. Ontario Standard Pollutants Emissions – 1988	A-16
Table A13. Ontario Standard Pollutants Emissions – 1989	A-17
Table A14. Ontario Standard Pollutants Emissions – 1990	A-18
Table A15. Ontario Standard Pollutants Emissions – 1991	A-19
Table A16. Ontario Standard Pollutants Emissions – 1992	A-20
Table A17. Ontario Standard Pollutants Emissions – 1993	A-21
Table A18. Ontario Standard Pollutants Emissions – 1994	A-22

Table A19. Ontario Standard Pollutants Emissions – 1995	A-23
Table A20. Ontario Standard Pollutants Emissions – 1996	A-24
Table A21. Ontario Standard Pollutants Emissions – 1997	A-25
Table A22. Ontario Standard Pollutants Emissions – 1998	A-26
Table A23. Ontario Standard Pollutants Emissions – 1999	A-27
Table A24. Ontario 1985 Top 10 SO ₂ Point Sources	A-28
Table A25. Ontario 1990 Top 10 SO ₂ Point Sources	A-29
Table A26. Ontario 1995 Top 10 SO ₂ Point Sources	A-30
Table A27. Ontario 1985 Top 10 NO _x Point Sources	A-31
Table A28. Ontario 1990 Top 10 NO _x Point Sources	A-32
Table A29. Ontario 1995 Top 10 NO _x Point Sources	A-33
Table A30. Ontario 1985 Ammonia Emissions by Source	A-34
Table A31. Ontario 1985 Alkaline Dust Emissions by Source	A-36
Table A32. Ontario Greenhouse Gases Emission Estimates, 1990-1999	A-38
Table A33. Ontario Particulate Emissions, 1995	A-40

Canada

Table B1. 1990 Criteria Air Contaminant Emissions for Canada	B-3
Table B2. 1990 SO ₂ Emissions by Province	B-4
Table B3. 1990 NO _x Emissions by Province	B-4
Table B4. 1990 VOC Emissions by Province	B-6
Table B5. 1990 CO Emissions by Province	B-6
Table B6. 1990 Total Particulate Matter Emissions by Province	B-8
Table B7. 1995 Criteria Air Contaminant Emissions for Canada	B-10
Table B8. 1995 SO ₂ Emissions by Province	B-11
Table B9. 1995 NO _x Emissions by Province	B-11
Table B10. 1995 VOC Emissions by Province	B-13
Table B11. 1995 CO Emissions by Province	B-13
Table B12. 1995 Total Particulate Matter Emissions by Province	B-15
Table B13. 1995 PM10 Emissions by Province	B-15
Table B14. 1995 PM2.5 Emissions by Province	B-17
Table B15. Canada 1990 – 2010 SO ₂ Emissions Forecast, by Province	B-19
Table B16. Canada 1990 – 2010 SO ₂ Emissions Forecast, by Sector	B-19
Table B17. Canada 1990 – 2010 NO _x Emissions Forecast, by Province	B-20
Table B18. Canada 1990 – 2010 NO _x Emissions Forecast, by Sector	B-20
Table B19. Canada 1990 – 2010 VOC Emissions Forecast, by Province	B-21
Table B20. Canada 1990 – 2010 VOC Emissions Forecast, by Sector	B-21

United States

Table C1.	U.S. 1985-1999 SO ₂ Emissions Trend, by Sector	C-2
Table C2.	U.S. 1985-1999 NO _x Emissions Trend, by Sector	C-4
Table C3.	U.S. 1985-1999 VOC Emissions Trend, by Sector	C-6
Table C4.	U.S. 1985-1999 CO Emissions Trend, by Sector	C-8
Table C5.	U.S. 1985-1999 PM-10 Emissions Trend, by Sector	C-10
Table C6.	1985 State-Level Emissions and Ranking for SO ₂	C-12
Table C7.	1985 State-Level Emissions and Ranking for NO _x	C-14
Table C8.	1985 State-Level Emissions and Ranking for VOC	C-16
Table C9.	1985 State-Level Emissions and Ranking for CO	C-18
Table C10.	1985 State-Level Emissions and Ranking for PM ₁₀	C-20
Table C11.	1990 State-Level Emissions and Ranking for SO ₂	C-22
Table C12.	1990 State-Level Emissions and Ranking for NO _x	C-24
Table C13.	1990 State-Level Emissions and Ranking for VOC	C-26
Table C14.	1990 State-Level Emissions and Ranking for CO	C-28
Table C15.	1990 State-Level Emissions and Ranking for PM ₁₀	C-30
Table C16.	1995 State-Level Emissions and Ranking for SO ₂	C-32
Table C17.	1995 State-Level Emissions and Ranking for NO _x	C-34
Table C18.	1995 State-Level Emissions and Ranking for VOC	C-36
Table C19.	1995 State-Level Emissions and Ranking for CO	C-38
Table C20.	1995 State-Level Emissions and Ranking for PM ₁₀	C-40
Table C21.	1999 State-Level Emissions and Ranking for SO ₂	C-42
Table C22.	1999 State-Level Emissions and Ranking for NO _x	C-44
Table C23.	1999 State-Level Emissions and Ranking for VOC	C-46
Table C24.	1999 State-Level Emissions and Ranking for CO	C-48
Table C25.	1999 State-Level Emissions and Ranking for PM ₁₀	C-50

Canada and United States

Table D1.	1990 Canada and U.S. SO ₂ Emissions by Province/State	D-2
Table D2.	1990 Canada and U.S. NO _x Emissions by Province/State	D-4
Table D3.	1990 Canada and U.S. VOC Emissions by Province/State	D-6
Table D4.	1990 Canada and U.S. CO Emissions by Province/State	D-8
Table D5.	1995 Canada and U.S. SO ₂ Emissions by Province/State	D-10
Table D6.	1995 Canada and U.S. NO _x Emissions by Province/State	D-12
Table D7.	1995 Canada and U.S. VOC Emissions by Province/State	D-14
Table D8.	1995 Canada and U.S. CO Emissions by Province/State	D-16

LIST OF FIGURES

Ontario

Figure A1a.	Ontario SO ₂ Emission Trend by Sector, 1985-1999	A-2
Figure A1b.	Ontario SO ₂ Emission Distribution by Sector - 1985, 1990, 1995 and 1999 .	A-3
Figure A2.	Impact of the Countdown Acid Rain Program on Ontario SO ₂ Emission Trends	A-4
Figure A3.	Ontario Hydro SO ₂ Emissions Trend, 1980-1999	A-5
Figure A4a.	Ontario NO _x Emission Trend by Sector, 1985-1999	A-6
Figure A4b.	Ontario NO _x Emission Distribution by Sector - 1985, 1990, 1995 and 1999 .	A-7
Figure A5.	Ontario Hydro NO _x Emission Trend, 1980-1999	A-8
Figure A6a.	Ontario VOC Emission Trend by Sector, 1985-1999	A-9
Figure A6b.	Ontario VOC Emission Distribution by Sector - 1985, 1990, 1995 and 1999	A-10
Figure A7.	Ontario CO Emission Trend by Sector, 1985-1999	A-11
Figure A8.	Ontario PM Emission Trend by Sector, 1985-1999	A-12
Figure A9.	Ontario 1985 Top 10 SO ₂ Point Sources	A-27
Figure A10.	Ontario 1990 Top 10 SO ₂ Point Sources	A-28
Figure A11.	Ontario 1995 Top 10 SO ₂ Point Sources	A-30
Figure A12.	Ontario 1985 Top 10 NO _x Point Sources	A-31
Figure A13.	Ontario 1990 Top 10 NO _x Point Sources	A-32
Figure A14.	Ontario 1995 Top 10 NO _x Point Sources	A-33
Figure A15.	Ontario 1985 Ammonia Emission Distribution by Source	A-35
Figure A16.	Ontario 1985 Alkaline Dust Emission Distribution by Source	A-37
Figure A17.	Ontario Greenhouse Gases Emission Estimates - 1990, 1995 and 1999 .	A-39
Figure A18.	Ontario Particulate Emission Estimates – 1995	A-41

Canada

Figure B1.	Canada 1990 SO ₂ Emissions by Province	B-5
Figure B2.	Canada 1990 NO _x Emissions by Province	B-5
Figure B3.	Canada 1990 VOC Emissions by Province	B-7
Figure B4.	Canada 1990 CO Emissions by Province	B-7
Figure B5.	Canada 1990 TPM Emissions by Province	B-9
Figure B6.	Canada 1995 SO ₂ Emissions by Province	B-12
Figure B7.	Canada 1995 NO _x Emissions by Province	B-12
Figure B8.	Canada 1995 VOC Emissions by Province	B-14
Figure B9.	Canada 1995 CO Emissions by Province	B-14
Figure B10.	Canada 1995 TPM Emissions by Province	B-16
Figure B11.	Canada 1995 PM10 Emissions by Province	B-16
Figure B12.	Canada 1995 PM2.5 Emissions by Province	B-18

United States

Figure C1.	1985-1999 SO ₂ Emissions Trend	C-3
Figure C2.	1985-1999 NO _x Emissions Trend	C-5
Figure C3.	1985-1999 VOC Emissions Trend	C-7
Figure C4.	1985-1999 CO Emissions Trend	C-9
Figure C5.	1985-1999 PM ₁₀ Emissions Trend	C-11
Figure C6.	1985 SO ₂ Emissions by State	C-13
Figure C7.	1985 NO _x Emissions by State	C-15
Figure C8.	1985 VOC Emissions by State	C-17
Figure C9.	1985 CO Emissions by State	C-19
Figure C10.	1985 PM ₁₀ Emissions by State	C-21
Figure C11.	1990 SO ₂ Emissions by State	C-23
Figure C12.	1990 NO _x Emissions by State	C-25
Figure C13.	1990 VOC Emissions by State	C-27
Figure C14.	1990 CO Emissions by State	C-29
Figure C15.	1990 PM ₁₀ Emissions by State	C-31
Figure C16.	1995 SO ₂ Emissions by State	C-33
Figure C17.	1995 NO _x Emissions by State	C-35
Figure C18.	1995 VOC Emissions by State	C-37
Figure C19.	1995 CO Emissions by State	C-39
Figure C20.	1995 PM ₁₀ Emissions by State	C-41
Figure C21.	1999 SO ₂ Emissions by State	C-43
Figure C22.	1999 NO _x Emissions by State	C-45
Figure C23.	1999 VOC Emissions by State	C-47
Figure C24.	1999 CO Emissions by State	C-49
Figure C25.	1999 PM ₁₀ Emissions by State	C-51

Canada and United States

Figure D1.	1990 Canada and U.S. SO ₂ Emissions by Province/State	D-3
Figure D2.	1990 Canada and U.S. NO _x Emissions by Province/State	D-5
Figure D3.	1990 Canada and U.S. VOC Emissions by Province/State	D-7
Figure D4.	1990 Canada and U.S. CO Emissions by Province/State	D-9
Figure D5.	1995 Canada and U.S. SO ₂ Emissions by Province/State	D-11
Figure D6.	1995 Canada and U.S. NO _x Emissions by Province/State	D-13
Figure D7.	1995 Canada and U.S. VOC Emissions by Province/State	D-15
Figure D8.	1995 Canada and U.S. CO Emissions by Province/State	D-17

Acknowledgement

The Emission Inventory Group wishes to acknowledge the contributions from CW Environmental Consulting Inc. for their role in preparing the Ontario emission estimates and various emission summary tables in this document.

Abbreviations and Symbols

CO	carbon monoxide
CO ₂	carbon dioxide
CPPI	Canadian Petroleum Products Institute
EC	Environment Canada
EMRB	Environmental Monitoring and Reporting Branch (of MOE)
EPA	(United States) Environmental Protection Agency (see USEPA)
FRED V3	Fast Reference Emission Document, Version 3
FRED V4	Fast Reference Emission Document, Version 4
FRED V5	Fast Reference Emission Document, Version 5
kt	kilotonnes i.e. thousand metric tonnes
MOE	Ontario Ministry of the Environment
MOEE	Ontario Ministry of Environment and Energy
NAPAP	National Acid Precipitation Assessment Program
NEDS	National Emissions Data System
NGL's	natural gas liquids (propane and butane for example)
NO _x	nitrogen oxides (expressed as NO ₂)
OECD	Organization for Economic Co-operation and Development
PM	particulate matter
PM ₁₀ (PM-10)	particulate matter of aerodynamic diameter less than or equal to 10 micrometers
PM _{2.5} (PM-25)	particulate matter of aerodynamic diameter less than or equal to 2.5 micrometers
RAC	Railway Association of Canada
SO ₂	sulphur dioxide
TGS	thermal generating station
USEPA	United States Environmental Protection Agency (see EPA)
VOC	volatile organic compounds

Definitions

anthropogenic -	Caused by human activities.
standard pollutants -	Sulphur dioxide, nitrogen oxides, volatile organic compounds, and carbon monoxide, particulate matters.

Conversion Factors

To Convert From	To	Multiply By
pound (lb)	kilogram (kg)	0.4536
ton (U.S., 2,000 lbs.)	kilogram (kg)	907.2
ton (U.S., 2,000 lbs.)	tonne (metric, 1000 kg)	0.9072

Introduction

What is FRED Version 5?

This report is the fifth Fast Reference Emission Document (FRED V5) published by the Emission Inventory Group of the Ontario Ministry of Environment (MOE). It is more up-to-date than previous versions of FRED. FRED is a compilation of air emission data from the emission inventories of various government agencies. Its main purpose is to provide a quick and comprehensive look at the air emissions of the standard pollutants (SO₂, NO_x, VOCs, CO and particulate matter) and carbon dioxide in Ontario. It is the main source of published emission estimates from the MOE's Emission Inventory Group. Its secondary purpose is to present air emission amounts of the standard pollutants in Canada and the United States, information which has already been made available elsewhere by Environment Canada and the U.S. EPA, but which has been gathered and compiled here for the reader's convenience.

For Ontario, FRED V5 presents the latest data available as of March 2000. For Canada and the U.S., FRED V5 presents the latest data available as of December 1999. Anyone who intends to apply the data in this report to program development and emission-related projects is advised to contact the original sources of the data for assistance. Questions about the Ontario section of FRED V5, should be directed to the staff member indicated in the Preface to this document.

FRED V5 consists of four sections: Ontario, Canada, the United States, and combined Canada/United States. FRED V5 presents emission trends, detailed annual emissions summaries, emissions by sector, and emissions from individual major emitters. 1985, 1990, and 1995 are base years and more detailed information is provided for them.

Since FRED V4 was published in 1998, new emission estimation methodologies have been developed, and more up-to-date emission information has been gathered. With these new methodologies and new information, emission estimates have been refined and updated. Where such a difference occurs, the estimate in FRED V4 is out-of-date, and the estimate in FRED V5 is current.

Readers are reminded that emission inventory compilation is a dynamic process. The emission estimates presented in FRED V5 are subject to revision whenever more up-to-date methodologies and information become available. Any changes in the emission estimates will be reported in future versions of FRED.

What is an Emission Inventory?

An emission inventory is a list of air pollution sources and the pollutant amounts emitted from each source. It is compiled for a specific geographic area. Emission inventories categorize emission sources as point, area, and mobile sources.

- Point sources are single facilities with sufficiently large emissions to warrant individual cataloging. Power generating plants, factories, smelters and refineries are examples of point sources.
- Area sources are sources that are too small, too numerous, or too dispersed to catalog individually, but that collectively contribute significantly to the national or provincial total. Residential, commercial and industrial districts are examples of area sources. A specific category of area source is the open source with fugitive emissions. This category includes roads, construction activities, agricultural tilling, and wind erosion (including wind erosion of stockpiles), all of which are open sources of fugitive particulate emissions. This category also includes landfills, which are open sources of fugitive VOC emissions, as well as all fires (building fires, forest fires, forest management prescribed fires, and agricultural open burning), which are all open sources of fugitive particulate and VOC emissions.
- Mobile sources are on-road vehicles, off-highway vehicles and machines, railroad engines, aircraft, ships, and all other engines.

Emissions can generally be estimated with the following equation:

$$E = A \times EF \times \frac{100 - CE}{100}$$

Where:

E	=	emissions,
A	=	activity rate (or base quantity),
EF	=	emission factor, and
CE	=	overall emission control (reduction) efficiency (in %)

At a factory, for example, emission reduction is done using emission control equipment. The factory would inform an emissions inventory group, such as the MOE's Emission Inventory Group, what the efficiency is of each of its pieces of emission control equipment. The emission inventory group can gauge whether the company-provided

efficiencies are reasonable, based on accepted ranges of efficiency for each type of equipment. Where a company does not know the efficiency of a piece of control equipment, the emission inventory group can use a default value.

Emission factors are values that are used to relate the quantity of a pollutant released to the atmosphere with the activity that releases the pollutant. Emission factors can be derived in many ways. The following ways are listed in descending order of accuracy:

- **Source-Specific**

Emission information can be directly obtained from source-specific tests or from continuous emission monitors at a source. These methods provide the best emission information about the source when the source operates at the same conditions that were present during testing or monitoring.

- **Material Balance**

The material balance approach may also provide reliable average emission estimates for a specific source. It is appropriate in situations where a high percentage of material is lost to the atmosphere (e.g. sulphur in fuel combustion, and processes in which all the solvents evaporate). It may not be appropriate where the material is consumed or chemically combined in the process.

- **Equipment Performance**

If representative source-specific data cannot be obtained, emissions information may be obtained from the equipment manufacturer or from anyone who has conducted a reliable test on similar equipment.

- **Generic Emission Factors**

These are average or representative values from emission data from similar processes at the same type of source. These factors are used to estimate long-term emissions.

- **Best Conjecture**

In cases where the above methods of deriving emission factors are unavailable or inappropriate, this method is used. A conjecture is made based on the emission history of the source, or based on anticipated activities and equipment changes. This method can give very poor results compared to the above methods, and is therefore used as a last resort.

When compiling emission inventories, source-specific emission factors are always used where available, since they are the most accurate. If they are not available, then material balance emission factors are used where appropriate, since they are the second-most accurate emission factors. If material balance emission factors are not appropriate, then equipment performance emission factors are used, and so on down the list of types of emission factors.

Accuracy of Emission Estimates in FRED V5

Emission inventories are more accurate for some pollutants than for others because there are different estimation methodologies for different pollutants and because there are different kinds of sources. According to Environment Canada the following ranges of accuracy are typical of annual emission estimates in emission inventories:

- SO₂ and CO₂ accuracy is high - $\pm 10\%$ at best.
- NO_x accuracy is medium - $\pm 30\%$ at best.
- anthropogenic VOC accuracy is low
- natural VOC accuracy is very low, with estimates being off by a factor of 3 for some natural VOC's and off by a factor of 5 for others.

The reason that natural VOC emission estimates have a high level of uncertainty is that the model used to derive them relies on satellite imagery, land use data and meteorology. For natural VOC emission estimates, the USEPA uses a model called PC-BEIS and Canada uses an adaptation of this model called Can-BEIS. In Canada, natural VOC emissions account for 83% of all VOC emissions.

In the Ontario Emission Inventory, accuracy of emissions estimates is probably close to or within the accuracy ranges from Environment Canada that are stated above. Though the accuracy for some emission estimates may seem low, this level of accuracy is the state-of-the-art. The Ontario Emission Inventory was compiled by using the most accurate emission factors possible, as described above in "What is an Emission Inventory?".

The Emission Inventory Group will continually revise the Ontario Emission Inventory as better data and improved emission estimation methodologies become available.

Sources of Data in FRED V5

Ontario

For years, the Ontario MOE's Emission Inventory Group has been compiling the Ontario Emission Inventory in collaboration of Environment Canada. Methodologies from Environment Canada and the U.S. EPA, as well as source-specific methodologies, have been used in estimating emissions. Raw data has been obtained from: i) the Ontario 1990-1999 Industrial Emissions Surveys conducted jointly by the Ontario Ministry of the Environment and Environment Canada-Ontario Region; ii) Statistics Canada information such as census results, end-use energy demand figures, etc.; iii) reports from organizations such as the Canadian Chemical Producers Association (CCPA), the Canadian Steel Environment Association (CSEA), and Ontario Power Generation Inc. (former Ontario Hydro); iv) Environment Canada reports; and v) reports and publications from other federal ministries, provincial ministries and industrial associations.

The on-road vehicles emissions were estimated using the MOBILE 5C transportation model which is the Canadian version of the USEPA's MOBILE 5 model.

The data in the Ontario section of this report is from the Emission Inventory Group of the Ontario Ministry of the Environment except the greenhouse gas data, which is from Environment Canada.

PM₁₀/PM_{2.5} emissions have been included in Ontario's emission inventory for the year 1995.

Canada

In the Canada section, data are obtained from Environment Canada. It should be noted that the emission values for the province of Ontario in the Canada Section may be different from that in the Ontario section. The emission values in the Ontario section have been updated with more available information and should be considered more recent.

United States

Data in the United States section were extracted from the most recent National Emission Trend inventory databases obtained from the U.S. EPA. The extracted emission values were converted to metric tonnes for consistency with other sections in this report.

Canada and United States

Data in the combined Canada and United States section are taken from the Canada and United States sections.

Next Update

The ministry recently conducted a survey of SO₂, NO_x, VOC and PM₁₀/PM_{2.5} emissions from Anti-Smog Action Plan partners and some selected individual companies or facilities (point sources only). The survey results indicated that some revisions were required for previously reported emission values of these contaminants. The ministry has incorporated these revisions into this FRED document. As emission reports are still being received by the ministry, the ministry will include any other necessary revisions in the future releases of the FRED document.

The USEPA released a new transportation model, the MOBILE 6, in early 2002 to estimate on-road vehicle emissions. This US model will be modified by Environment Canada to reflect the actual Canadian vehicle characteristics and operating behaviour. Once this canadianized MOBILE 6 (i.e. MOBILE 6C) is available, it will be used to re-estimate the on-road vehicle emissions.

Ontario point emissions have been estimated from the process information provided by industry to the Ministry through voluntary emission surveys. Ontario has implemented regulation O.Reg. 127/01 "Airborne Contaminant Discharge - Monitoring and Reporting" which applies to emitters in the province's industrial, commercial, institutional and municipal sectors, requiring the mandatory tracking and public reporting of 358 air pollutants. It came into effect May 1, 2001. These reported emissions will be reflected in future releases of the FRED document.

ONTARIO EMISSIONS

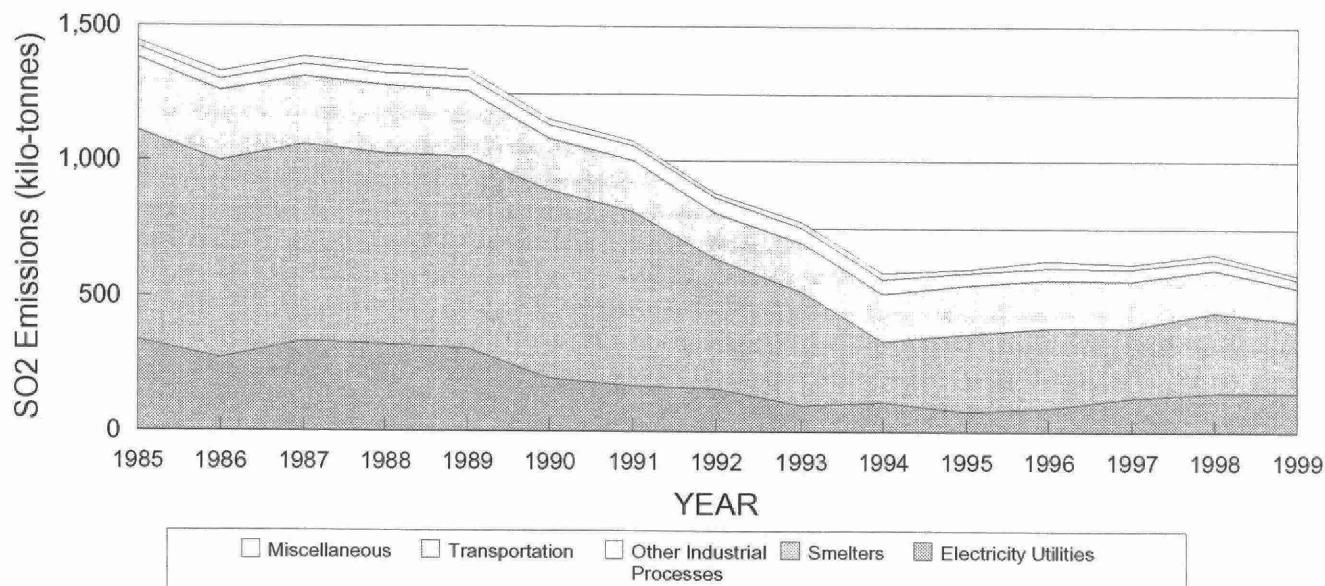
Table A1. Ontario SO2 Emission Trend by Sector, 1985-1999

(Kilo-tonnes)

SECTOR	Emissions [1]														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
AREA SOURCES [2]															
Total Vehicles	15.6	16.0	17.1	17.5	20.0	21.3	23.7	25.2	24.4	24.5	16.0	16.4	11.4	11.3	10.6
Off-Highway Engines	6.0	5.9	6.2	6.1	6.8	7.3	7.7	7.4	7.3	7.2	7.6	8.2	9.3	4.5	4.8
Railroad	2.2	1.8	1.8	2.6	3.1	2.7	3.4	3.2	2.9	2.6	2.4	2.6	3.1	1.0	1.1
Aircraft	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5
Marine	16.0	16.7	19.4	18.8	20.6	19.8	19.7	21.2	20.7	19.4	18.6	16.9	20.6	20.7	14.2
Residential	8.1	9.5	8.4	8.2	8.9	8.5	7.5	7.0	8.1	7.4	4.7	6.2	5.0	4.6	4.2
Commercial	3.9	4.2	4.0	4.4	4.4	3.9	2.6	2.3	3.0	2.9	2.8	3.1	4.0	3.7	1.8
Industrial	10.5	14.5	14.9	16.3	13.8	10.3	6.8	6.1	10.1	11.0	5.5	17.7	7.5	11.9	7.6
Incineration	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Fires	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dry Cleaning	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
General Solvent Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Marketing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc. Processes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL [4]	62.8	69.3	72.5	74.4	78.1	74.3	72.0	73.0	77.1	75.7	58.3	71.8	61.5	58.5	44.9
POINT SOURCES															
Electric Utilities	336.7	269.8	332.5	320.6	305.5	196.6	168.3	158.4	97.2	108.6	74.6	87.6	126.1	145.7	145.9
Non-Iron Smelters	771.2	728.1	726.4	704.3	707.3	694.0	642.6	480.4	420.1	224.9	287.4	296.7	259.5	297.2	264.3
Other Primary Metals	47.6	50.8	50.1	50.1	49.5	28.3	28.9	29.8	30.5	30.3	31.1	29.4	31.0	22.0	22.5
Petroleum Refineries	63.8	59.9	64.0	64.6	67.5	60.9	56.6	57.6	53.1	62.0	63.5	70.2	64.2	64.7	58.5
Pulp & Paper	20.0	21.5	19.0	18.8	18.7	16.8	15.2	9.9	10.4	10.0	8.2	11.2	9.6	10.7	9.6
Chemicals	5.1	5.8	6.0	7.7	7.3	11.3	10.1	11.3	12.3	12.7	8.8	7.0	7.8	7.5	8.5
Other Manufacturing	24.2	28.3	30.7	36.2	34.6	24.4	20.9	19.4	19.9	23.0	23.1	18.6	21.0	22.4	23.4
Mining	112.6	96.6	84.6	78.6	68.6	48.1	56.4	39.2	53.7	37.8	44.5	40.5	38.7	28.8	0.8
Miscellaneous [3]	0.5	0.5	0.5	0.5	0.5	0.7	0.7	1.0	1.0	1.1	1.0	1.0	1.0	1.3	1.5
SUBTOTAL [4]	1,381.7	1,261.4	1,313.8	1,281.3	1,259.6	1,081.1	999.7	807.1	698.4	510.3	542.2	562.3	558.9	600.1	535.0
ONTARIO TOTAL [4]	1,444.5	1,330.7	1,386.4	1,355.7	1,337.7	1,155.4	1,071.7	880.1	775.4	586.1	600.5	634.1	620.4	658.6	579.9

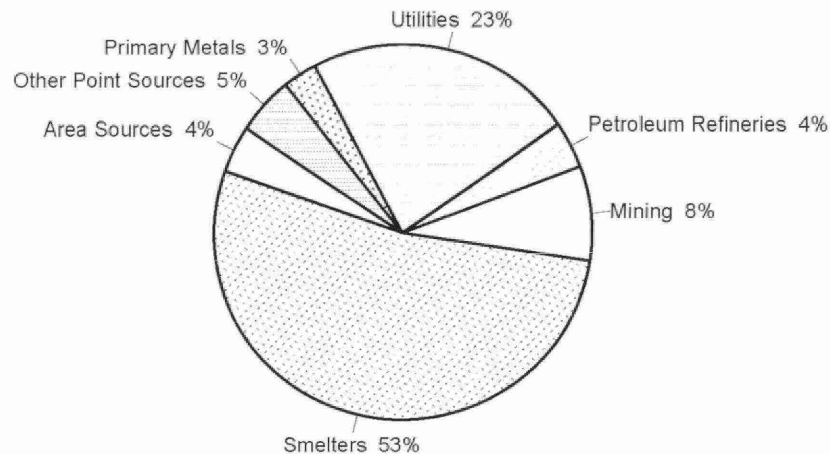
- Notes: [1] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.
 [2] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
 [3] Includes commercial and major institutional emissions.
 [4] Components may not add up to totals due to rounding.
 [5] Zero values represent no emissions or emissions less than 50 tonnes per year.

Figure A1a. Ontario SO2 Emission Trend by Sector, 1985-1999

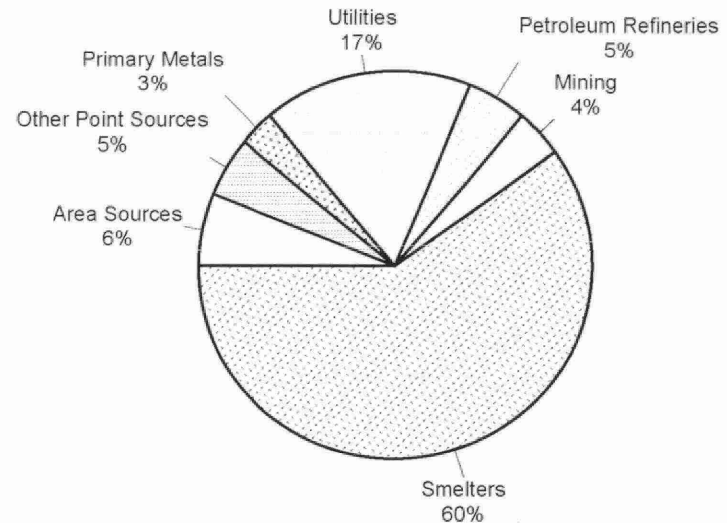


**Figure A1b. Ontario SO₂ Emission Distribution by Sector
- 1985, 1990, 1995 and 1999**

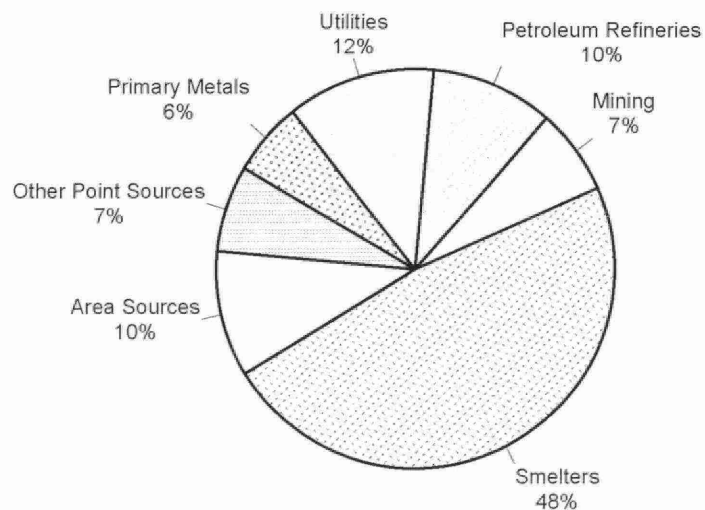
1985



1990



1995



1999

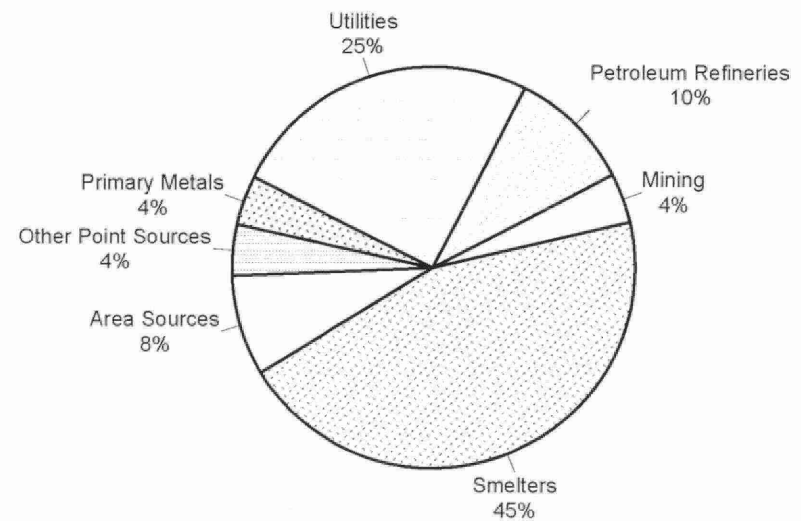


Table A2. Impact of the Countdown Acid Rain Program on Ontario SO₂ Emission Trends*
(Kilo-tonnes)

	YEAR																					Limit
Source	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1994	
Inco	812	724	329	459	685	695	635	658	637	637	617	572	420	357	162	236	236	200	235	221	265	
Falconbridge	123	113	61	79	85	74	85	65	65	68	70	64	54	57	54	45	54	54	57	38	100	
Algoma (Wawa)	155	128	69	80	123	112	96	84	78	68	42	53	36	50	35	44	40	38	28	0	125	
Ontario Hydro TGS	396	417	450	437	444	337	270	332	321	305	195	166	157	95	106	72	85	124	143	142	175	
Others*	272	259	232	219	233	227	245	247	255	260	231	217	214	216	230	204	219	205	196	179		
ONTARIO TOTAL	1,758	1,642	1,141	1,274	1,570	1,445	1,331	1,386	1,356	1,338	1,155	1,072	880	775	586	601	634	620	659	580	885	

Note [1] The Countdown Acid Rain Program began in 1986 and ended in 1994.

[2] The emissions of the companies in the Countdown Acid Rain Program were audited by third parties.

* "Other" sources are not part of the Countdown Acid Rain Program. They are the remaining SO₂ emission sources in Ontario.

Figure A2. Impact of the Countdown Acid Rain Program on Ontario SO₂ Emission Trends*

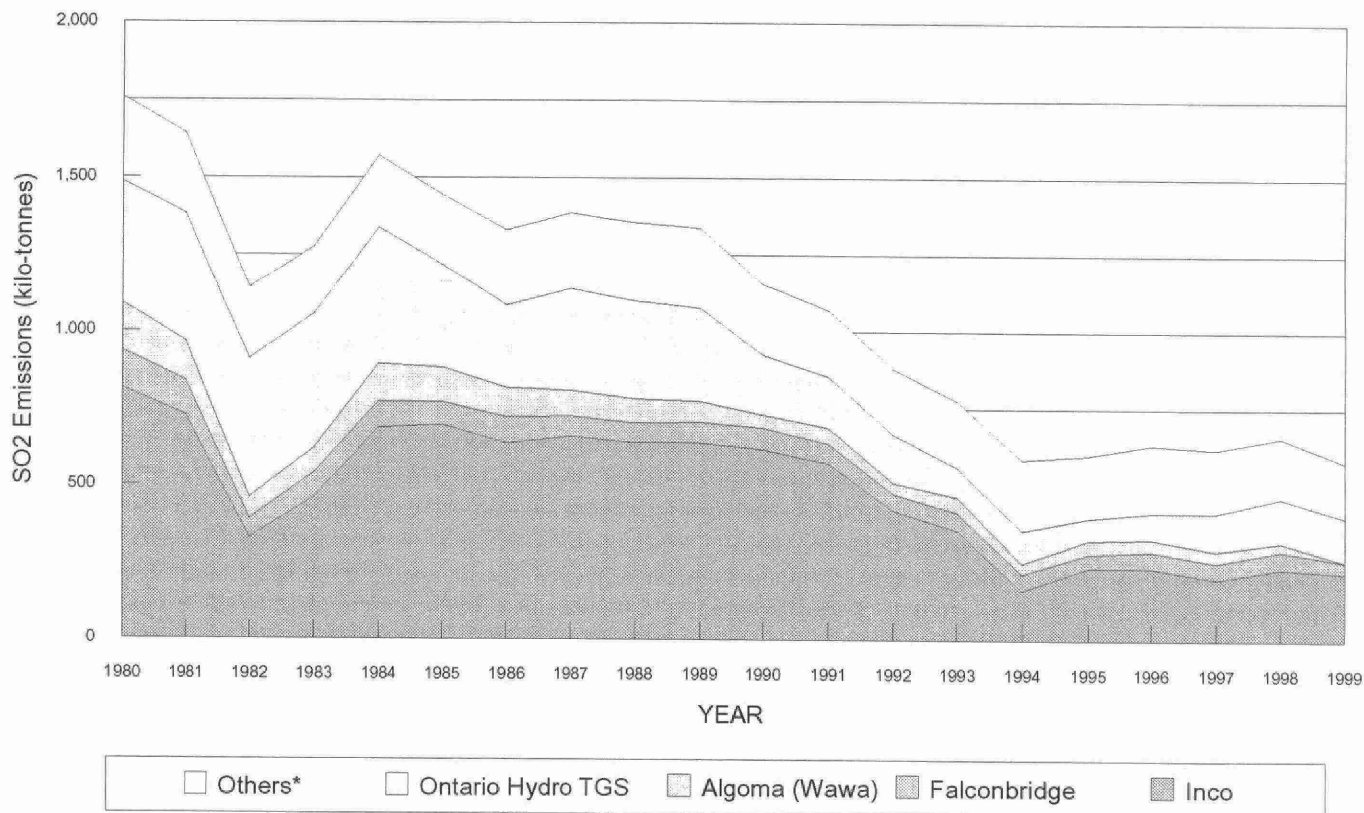


Table A3. Ontario Hydro Fossil Stations SO2 Emission Trend, 1980-1999

(Kilo-tonnes)

GENERATING STATION	EMISSIONS [1]																			
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
ATIKOKAN						1	2	4	5	4	4	3	2	2	2	2	4	4	6	6
R.L.HEARN	16	6	7	1																
J.C.KEITH	1	4	6	1	1															
LAKEVIEW	75	63	67	57	66	44	27	46	48	56	36	37	30	12	6	11	10	13	19	18
LAMBTON	150	154	152	171	145	118	96	105	90	89	46	37	42	25	53	16	21	23	29	27
LENNOX	0	1	2					0	2	4	2	3	2	0	1	0	0	0	2	2
NANTICOKE	144	181	207	199	222	169	139	169	166	145	101	82	77	52	41	37	46	76	78	82
THUNDER BAY	10	9	9	9	10	5	6	9	10	7	6	5	5	4	4	4	4	6	8	8
ONTARIO HYDRO TOTAL	396	417	450	437	444	337	270	332	321	305	195	166	157	95	106	72	85	124	143	142

NOTES :

- [1] Source of Data : Ontario Hydro Reports.
- [2] Zero values represent emissions less than 500 tonnes per year.
- [3] n.a. means emission values not available.
- [4] Components may not add up to totals due to rounding.

Figure A3. Ontario Hydro Fossil Stations SO2 Emission Trend, 1980-1999

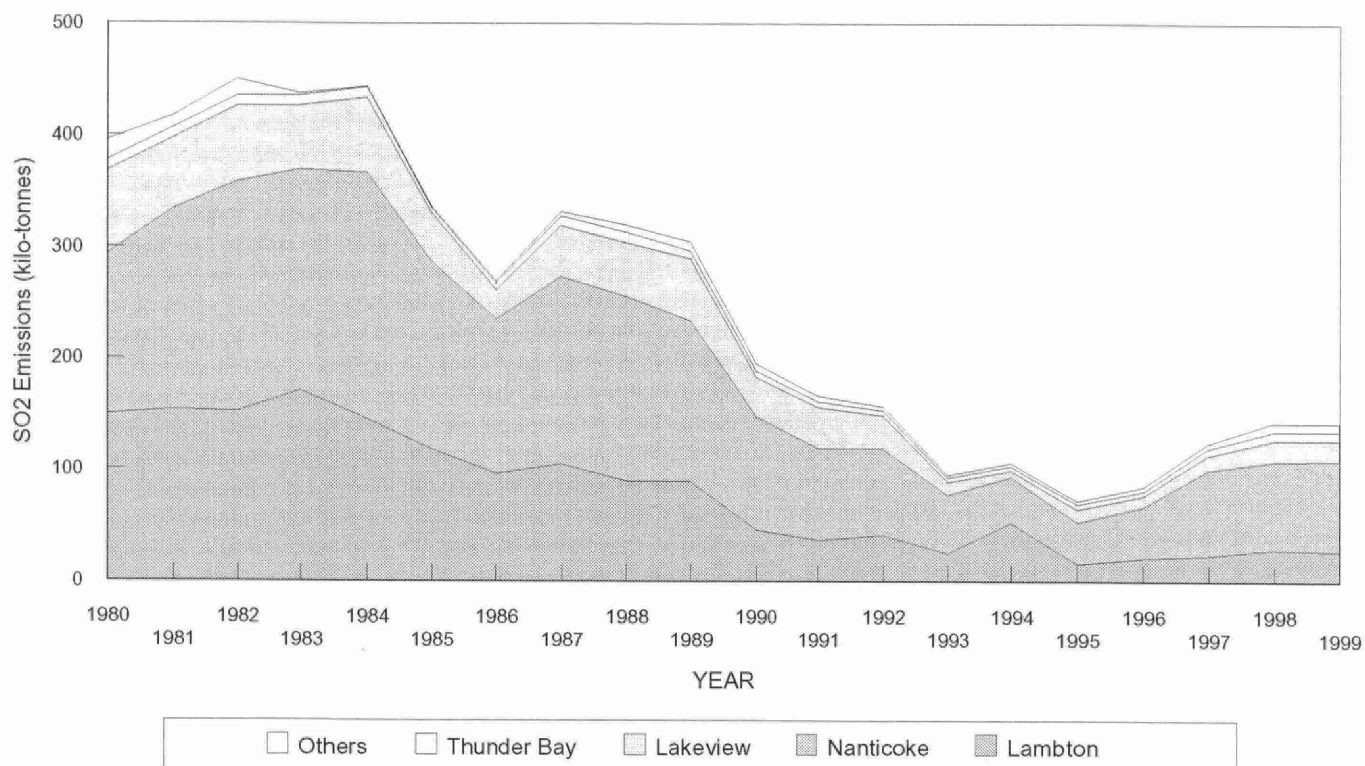


Table A4. Ontario NOx* Emission Trend by Sector, 1985-1999

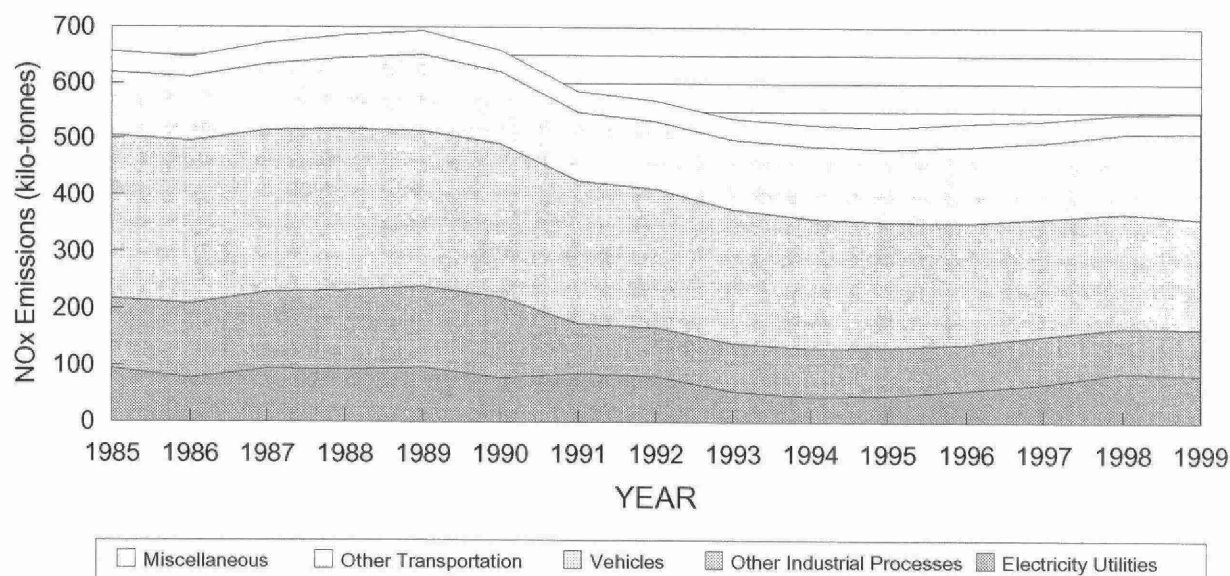
(Kilo-tonnes)

SECTOR	Emissions [1]														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
AREA SOURCES [2]															
Total Vehicles	287.8	286.7	285.8	285.7	275.4	270.2	251.6	244.2	234.8	228.1	221.2	213.1	206.2	200.8	193.6
Off-Highway Engines	72.7	75.1	78.6	76.5	80.3	81.6	74.0	72.6	76.9	80.8	85.0	89.2	87.4	98.1	108.7
Railroad	27.8	24.6	25.3	35.5	39.5	32.6	35.2	34.7	34.4	34.1	30.2	32.5	32.7	28.3	30.4
Aircraft	4.9	5.2	5.4	5.8	5.9	5.5	5.0	5.1	5.0	5.2	5.8	6.3	6.7	7.0	7.0
Marine	8.5	11.5	9.8	9.7	11.6	10.5	9.7	9.2	8.2	8.2	8.1	7.4	8.5	8.8	7.6
Residential	15.8	14.1	15.6	16.4	17.4	16.1	16.2	17.0	17.9	18.3	17.5	19.5	18.6	15.6	16.5
Commercial	8.6	7.7	6.3	7.1	7.8	7.0	7.3	7.8	8.4	8.1	9.1	9.1	9.2	8.3	9.1
Industrial	11.6	13.0	14.4	15.9	15.3	13.9	12.2	10.9	10.9	11.8	11.5	13.6	11.7	11.1	10.0
Incineration	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Fires	0.7	0.8	0.7	0.5	0.7	0.6	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4
Dry Cleaning	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
General Solvent Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Marketing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc. Processes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL [4]	438.7	439.0	442.4	453.5	454.2	438.5	412.0	402.3	397.4	395.3	389.3	391.7	381.8	378.8	383.8
POINT SOURCES															
Electric Utilities	94.4	77.4	94.5	92.4	96.5	77.8	85.9	81.1	54.9	44.8	47.5	56.7	68.2	87.9	84.3
Non-Iron Smelters	49.0	49.6	49.7	47.3	52.0	52.1	4.4	3.2	2.7	1.4	1.5	1.6	1.7	1.7	1.7
Other Primary Metals	18.7	21.4	21.6	21.4	20.3	16.6	17.0	16.4	16.9	16.9	14.5	15.1	15.9	13.9	14.2
Petroleum Refineries	14.3	14.5	15.1	15.6	15.9	16.6	14.2	15.2	14.7	15.4	15.6	14.7	13.6	11.0	10.9
Pulp & Paper	9.4	9.6	10.0	9.8	9.9	12.1	11.0	10.3	10.6	9.9	9.2	9.4	9.3	8.5	8.7
Chemicals	6.3	6.9	7.1	8.3	8.1	10.0	10.0	10.6	9.0	8.4	8.0	7.9	7.2	6.4	7.0
Other Manufacturing	22.2	26.0	27.8	34.1	32.5	30.7	26.2	25.2	26.1	28.8	30.4	27.4	31.0	32.4	32.7
Mining	1.1	1.0	1.1	1.1	1.1	1.8	1.9	1.7	1.8	1.7	2.4	2.5	3.0	3.3	3.2
Miscellaneous [3]	1.9	1.9	1.9	2.0	2.0	2.5	3.1	3.2	3.3	3.4	2.7	2.6	2.8	2.5	2.8
SUBTOTAL [4]	217.3	208.2	228.9	232.1	238.4	220.2	173.7	166.8	140.0	130.7	131.8	137.9	152.9	167.7	165.6
ONTARIO TOTAL [4]	656.0	647.2	671.3	685.6	692.7	658.7	585.8	569.1	537.4	526.0	521.2	529.5	534.7	546.5	549.4

* NOx expressed as NO2

- Notes: [1] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.
 [2] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
 [3] Includes commercial and major institutional emissions.
 [4] Components may not add up to totals due to rounding.
 [5] Zero values represent no emissions or emissions less than 50 tonnes per year.

Figure A4a. Ontario NOx* Emission Trend by Sector, 1985-1999



**Figure A4b. Ontario NO_x* Emission Distribution by Sector
- 1985, 1990, 1995 and 1999**

* NO_x expressed as NO₂

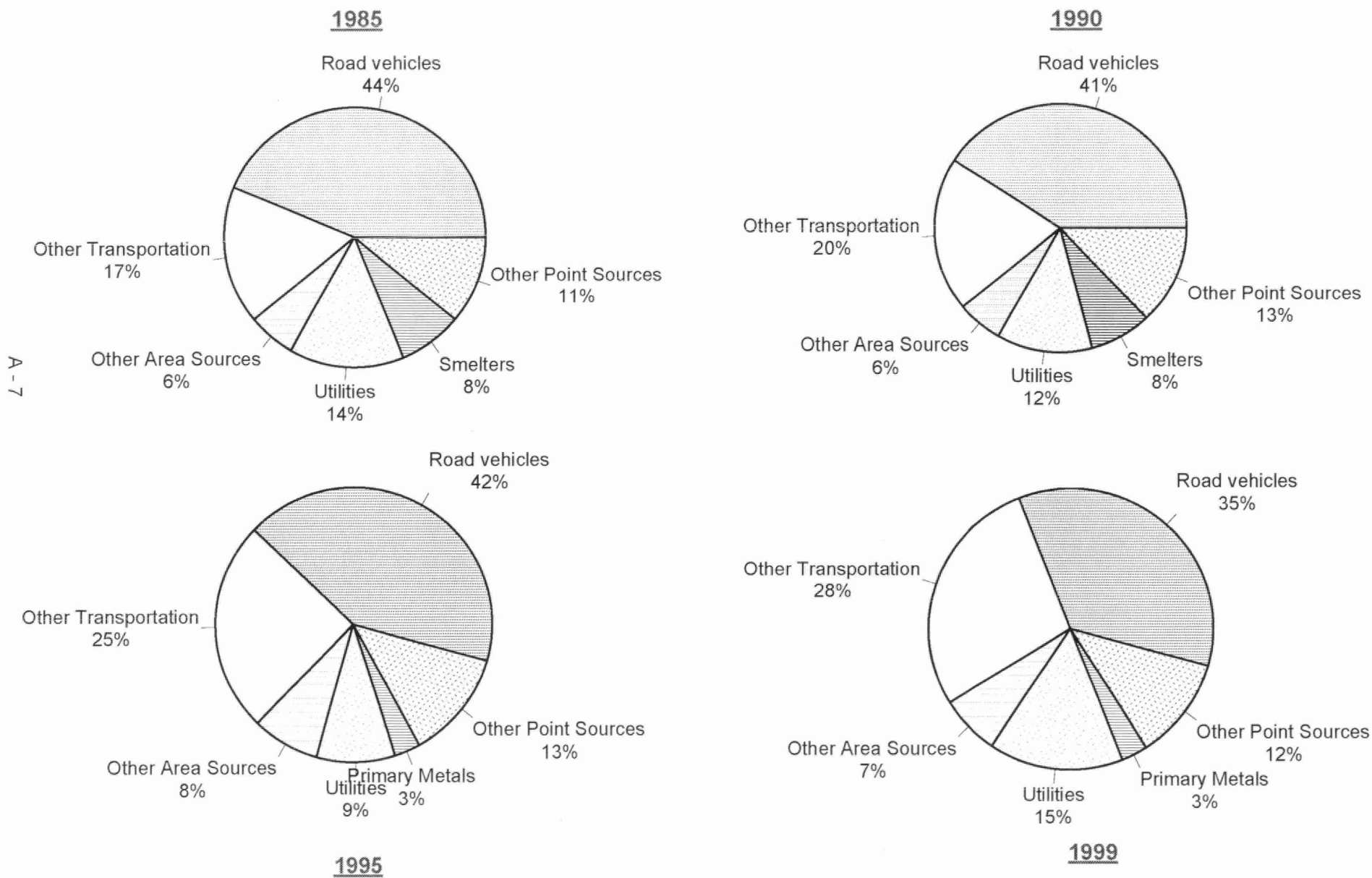


Table A5. Ontario Hydro Fossil Stations NOx* Emission Trend, 1980-1999

(Kilo-tonnes)

GENERATING STATION	EMISSIONS [1]																			
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
ATIKOKAN						0	1	2	3	2	2	2	1	1	1	1	2	2	3	2
R.L.HEARN	5	2	2	0																
J.C.KEITH	0	1	2	0	0															
LAKEVIEW	20	18	20	20	18	14	8	14	17	21	14	15	15	6	3	6	5	8	12	13
LAMBTON	19	20	20	18	20	18	15	18	18	18	13	15	14	10	11	12	15	18	22	20
LENNOX	0	0	0					0	1	2	2	1	1	0	0	0	0	1	2	3
NANTICOKE	56	64	74	75	72	60	51	55	49	48	43	48	46	34	24	23	29	34	42	37
THUNDER BAY	2	3	6	4	4	2	3	5	4	4	3	3	3	3	3	3	3	3	3	3
ONTARIO HYDRO TOTAL	101	109	123	118	114	94	77	95	92	96	77	85	80	54	44	45	54	66	86	79

* NOx expressed as NO2

NOTES :

- [1] Source of Data : Ontario Hydro Reports.
- [2] Zero values represent emissions less than 500 tonnes per year.
- [3] n.a. means emission values not available.
- [4] Components may not add up to totals due to rounding.
- [5] *NOx expressed as NO2.

Figure A5. Ontario Hydro Fossil Stations NOx* Emission Trend, 1980-1999

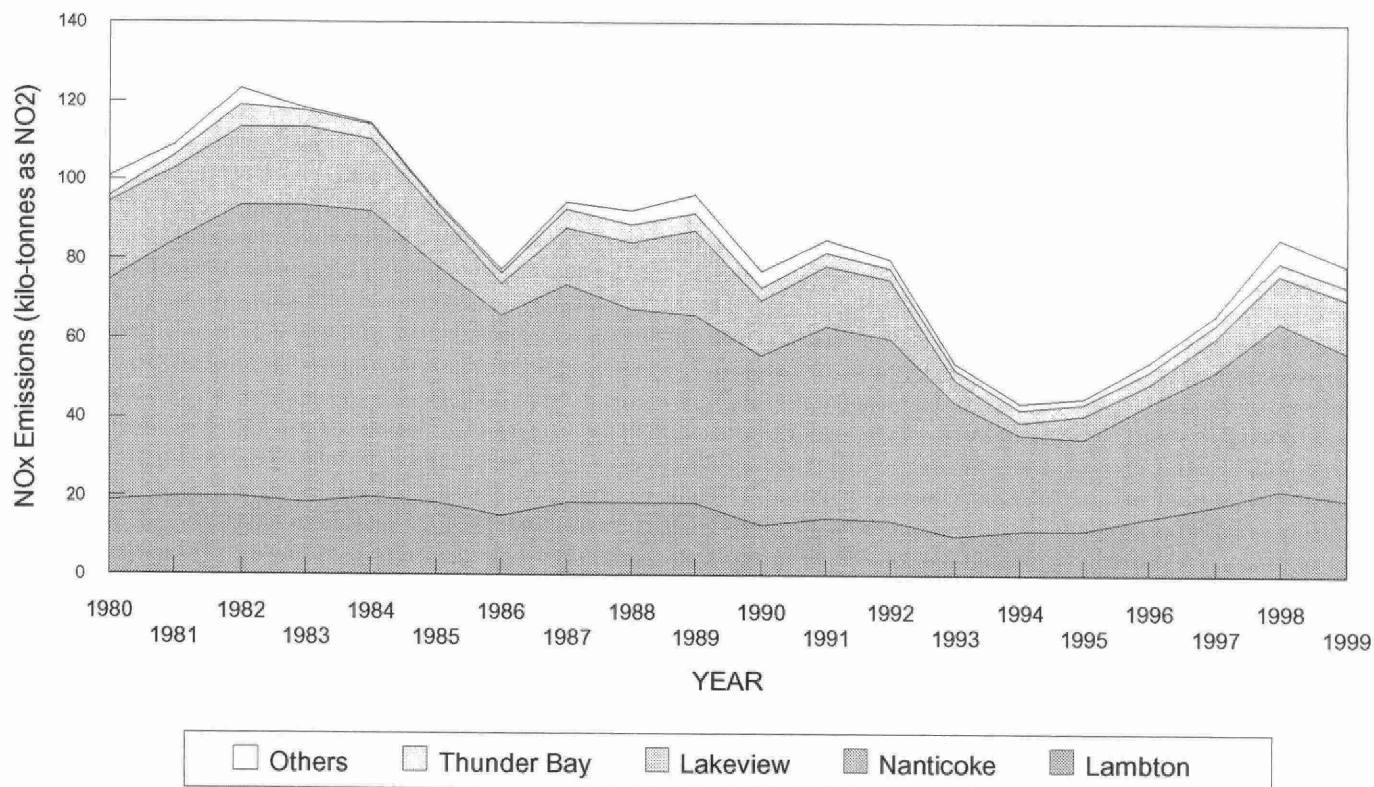


Table A6. Ontario VOC Emission Trend by Sector, 1985-1999

(Kilo-tonnes)

	Emissions [1]														
SECTOR	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
AREA SOURCES [2]															
Total Vehicles	261.6	263.5	262.3	259.4	241.3	229.2	197.8	189.7	179.7	172.8	167.1	161.7	149.5	146.1	139.1
Off-Highway Engines	33.2	35.8	36.4	37.8	41.0	41.1	40.4	41.3	42.0	42.3	45.7	45.3	47.4	48.9	51.1
Railroad	1.3	1.2	1.2	1.7	1.9	1.5	1.7	1.6	1.6	1.6	1.4	1.5	1.5	1.3	1.4
Aircraft	1.9	2.0	2.1	2.2	2.3	2.1	2.0	2.0	1.9	2.0	2.2	2.3	2.5	2.6	2.6
Marine	11.4	12.2	11.9	12.1	12.6	12.6	13.3	14.2	14.2	14.3	14.4	14.4	14.8	15.1	15.1
Residential	108.4	116.2	114.7	111.3	112.0	115.6	132.0	112.9	114.6	106.7	82.3	88.4	93.6	90.8	83.5
Commercial	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Industrial	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.4
Incineration	1.8	1.8	1.8	1.8	1.9	1.8	1.6	1.7	1.6	1.7	1.8	1.8	1.9	1.9	2.0
Fires	4.7	5.0	4.9	4.5	4.9	4.4	4.2	4.3	4.6	4.6	3.3	3.0	2.8	2.8	2.8
Dry Cleaning	5.5	5.6	5.6	5.7	5.8	5.9	5.4	4.8	4.2	3.6	3.0	3.1	3.2	3.4	3.4
Surface Coating	110.3	112.2	114.9	116.8	119.2	121.6	110.0	98.5	86.9	75.3	63.7	64.4	64.8	65.9	67.0
General Solvent Use	114.8	116.1	118.1	120.2	122.2	124.2	129.5	134.7	140.0	145.2	150.4	152.7	155.1	157.5	159.8
Fuel Marketing	33.7	34.1	34.9	36.0	36.8	35.3	34.6	34.9	35.2	35.6	36.2	36.6	36.6	36.8	37.1
Misc. Processes	6.3	6.7	7.3	7.8	8.0	7.6	7.2	6.7	6.4	7.1	7.6	7.7	6.8	6.7	5.8
SUBTOTAL [4]	695.6	713.1	716.9	718.2	710.6	704.1	680.4	648.0	633.7	613.6	580.2	584.1	581.4	580.5	571.5
POINT SOURCES															
Electric Utilities	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.6	0.5	0.4	0.1	0.1	0.0	0.0	0.1
Non-Iron Smelters	0.3	0.3	0.3	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Primary Metals	24.7	25.1	24.9	24.9	24.4	21.7	28.5	26.6	23.8	24.3	22.2	23.8	24.1	23.5	23.7
Petroleum Refineries	34.9	33.0	35.2	35.6	37.2	34.7	34.4	31.8	29.0	26.9	13.9	14.4	12.4	9.9	9.6
Pulp & Paper	7.6	8.2	9.2	9.0	8.7	14.1	13.0	12.8	14.8	13.7	12.5	12.8	10.6	10.6	11.1
Chemicals	15.8	16.9	17.8	18.8	18.9	21.7	21.3	20.0	21.7	20.4	17.2	17.6	17.0	15.9	15.0
Other Manufacturing	59.7	61.1	61.1	61.6	60.3	41.6	40.6	41.0	48.9	49.6	48.8	49.6	49.8	53.5	54.7
Mining	0.7	0.6	0.7	0.7	0.7	0.6	0.9	0.6	0.9	0.6	0.8	0.8	0.9	0.6	0.1
Miscellaneous [3]	0.7	1.0	1.0	1.1	0.8	4.3	4.3	4.2	4.2	4.5	4.5	4.7	5.6	5.7	5.6
SUBTOTAL [4]	144.5	146.4	150.4	152.2	151.5	139.2	143.6	137.6	143.8	140.5	119.9	123.8	120.5	119.8	120.0
ONTARIO TOTAL [4]	840.1	859.5	867.3	870.3	862.1	843.3	824.0	785.5	777.4	754.1	700.0	707.9	701.9	700.3	691.4

Notes: [1] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

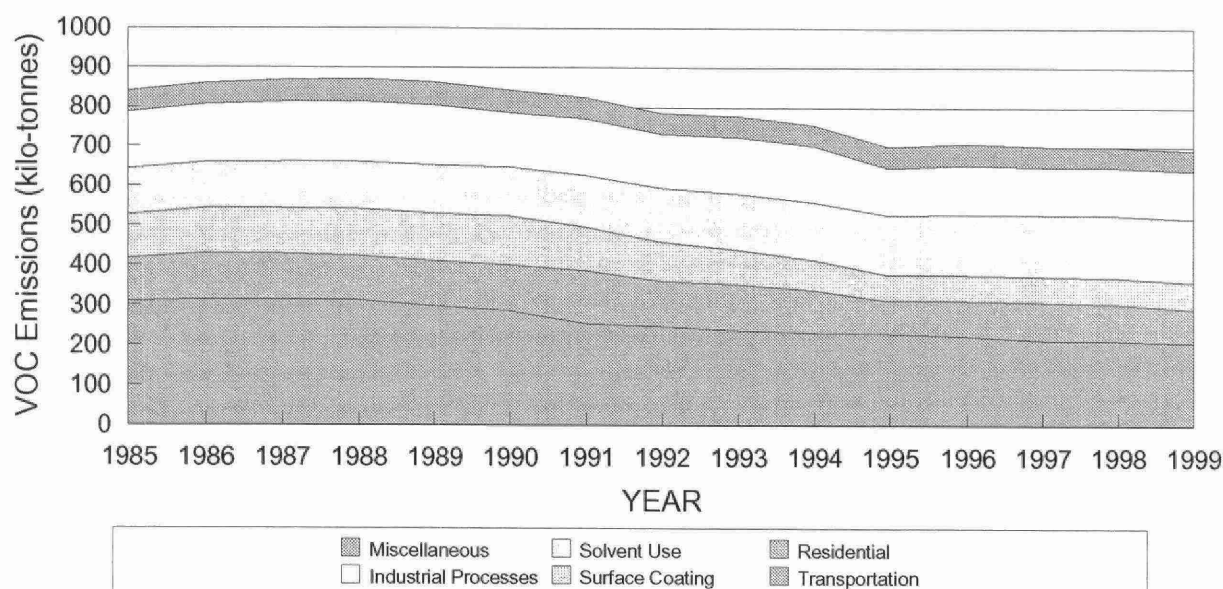
[2] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.

[3] Includes commercial and major institutional emissions.

[4] Components may not add up to totals due to rounding.

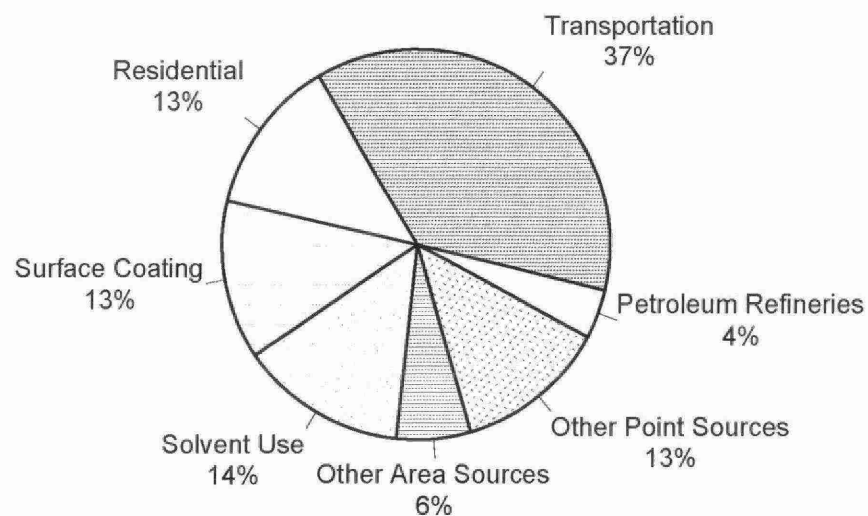
[5] Zero values represent no emissions or emissions less than 50 tonnes per year.

Figure A6a. Ontario VOC Emission Trend by Sector, 1985-1999

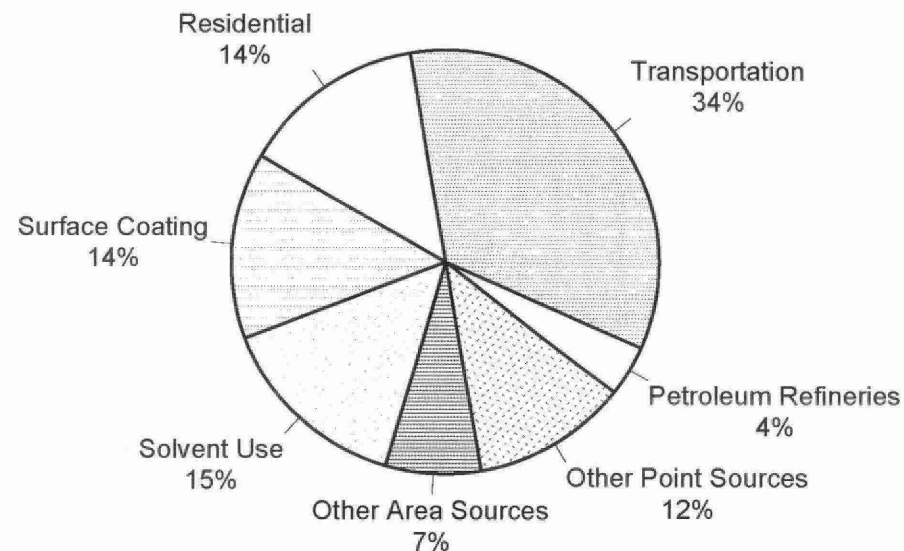


**Figure A6b. Ontario VOC Emission Distribution by Sector
- 1985, 1990, 1995 and 1999**

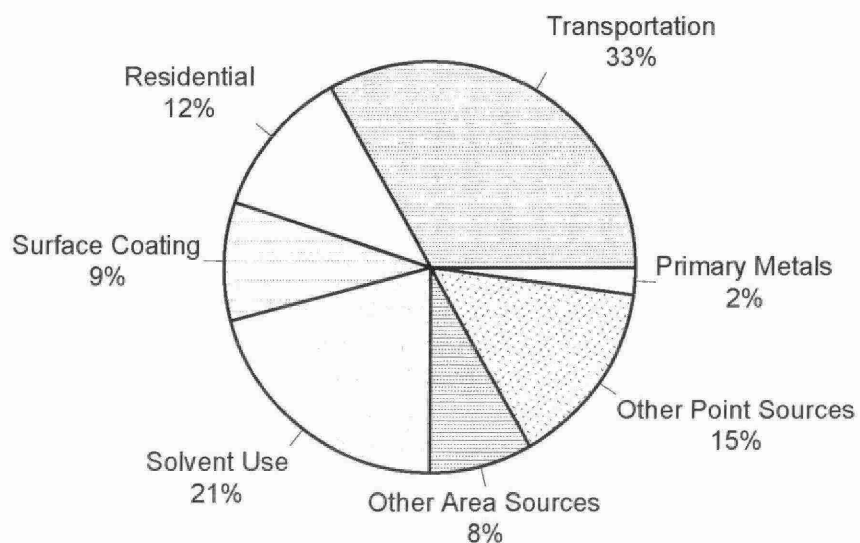
1985



1990



1995



1999

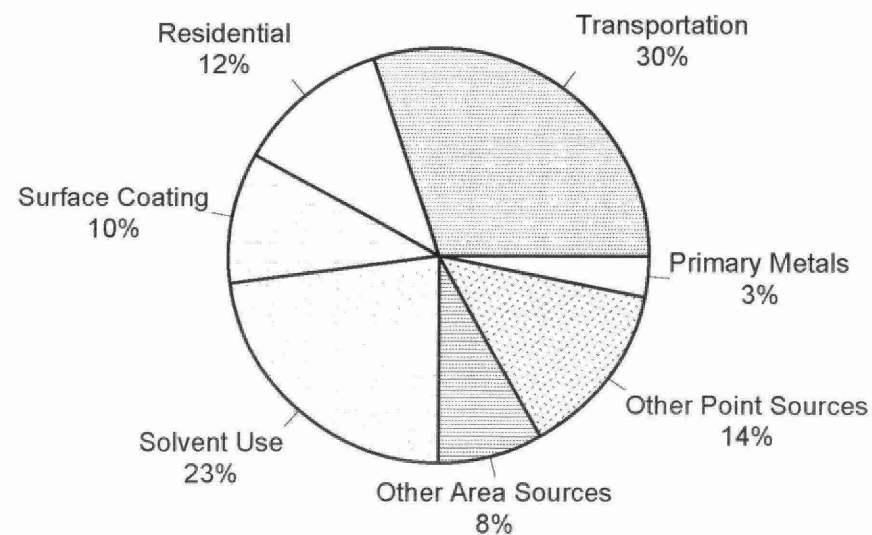


Table A7. Ontario CO Emission Trend by Sector, 1985-1999

(Kilo-tonnes)

	Emissions [1]														
SECTOR	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
AREA SOURCES [2]															
Total Vehicles	2,269.1	2,272.0	2,278.6	2,250.9	2,099.5	2,019.5	1,839.7	1,801.2	1,728.8	1,680.5	1,644.9	1,609.0	1,501.8	1,483.4	1,439.1
Off-Highway Engines	357.3	376.4	369.4	383.1	426.1	409.5	380.1	377.8	368.9	370.5	419.9	412.5	453.3	485.9	514.8
Railroad	5.3	4.7	4.9	6.8	7.6	6.3	6.8	6.7	6.6	6.5	5.8	6.2	6.3	5.4	5.8
Aircraft	11.5	11.3	12.6	13.0	13.2	13.1	12.2	11.5	11.1	11.2	11.9	11.8	12.5	13.6	14.1
Marine	34.7	36.3	36.0	36.5	37.9	38.4	40.7	44.0	44.2	44.4	44.9	45.2	46.2	46.8	47.1
Residential	198.4	212.1	209.9	204.1	205.5	211.7	241.1	207.1	210.4	196.4	152.4	161.8	172.9	167.1	154.2
Commercial	1.8	1.6	1.4	1.5	1.6	1.5	1.5	1.6	1.7	1.6	1.8	6.4	1.8	1.7	1.9
Industrial	8.8	9.3	10.3	11.2	11.4	11.0	10.3	9.4	9.0	9.6	10.3	10.4	8.9	8.4	6.8
Incineration	18.1	19.0	18.9	19.1	19.4	18.6	16.2	16.5	16.4	17.4	17.9	18.4	19.0	19.5	19.8
Fires	44.8	50.0	48.2	42.4	47.2	41.5	38.1	40.5	44.6	44.9	42.7	40.1	37.7	39.1	39.3
Dry Cleaning	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
General Solvent Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Marketing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc. Processes	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SUBTOTAL [4]	2,951.0	2,993.9	2,991.1	2,969.7	2,870.5	2,772.2	2,587.9	2,517.5	2,442.7	2,384.2	2,353.7	2,323.0	2,261.6	2,272.0	2,243.9
POINT SOURCES															
Electric Utilities	6.9	2.8	3.6	4.0	4.1	2.9	3.0	2.8	1.9	1.6	1.8	1.8	2.6	3.6	5.0
Non-Iron Smelters	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1
Other Primary Metals	25.1	23.6	24.6	24.8	25.8	20.6	20.4	20.6	21.2	21.6	21.6	21.9	21.9	22.2	22.9
Petroleum Refineries	5.1	4.8	5.1	5.2	5.4	5.0	4.7	4.6	4.5	4.8	12.9	13.5	14.1	14.1	14.1
Pulp & Paper	28.7	29.5	31.0	30.4	30.5	33.0	31.2	30.7	32.4	30.6	37.7	38.7	34.4	33.2	33.9
Chemicals	11.4	12.2	12.7	13.6	13.5	13.4	17.7	17.9	18.8	18.7	20.0	19.7	18.6	18.7	18.9
Other Manufacturing	17.6	20.4	21.3	27.7	26.3	19.8	19.8	19.5	20.0	21.3	22.4	22.5	23.0	23.9	23.6
Mining	20.7	18.5	19.2	21.0	20.1	17.7	27.5	18.6	25.8	17.9	22.1	22.9	24.6	16.9	1.5
Miscellaneous [3]	2.0	2.1	2.1	2.1	2.1	1.8	1.9	1.8	1.9	1.9	1.9	1.8	1.0	1.2	2.0
SUBTOTAL [4]	117.5	113.8	119.5	128.7	127.8	114.2	126.1	116.7	126.5	118.3	140.4	142.9	140.2	134.0	121.9
ONTARIO TOTAL [4]	3,068.4	3,107.7	3,110.6	3,098.4	2,998.3	2,886.3	2,714.0	2,634.3	2,569.2	2,502.5	2,494.0	2,465.9	2,401.8	2,406.0	2,365.8

- Notes: [1] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.
 [2] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
 [3] Includes commercial and major institutional emissions.
 [4] Components may not add up to totals due to rounding.
 [5] Zero values represent no emissions or emissions less than 50 tonnes per year.

Figure A7. Ontario CO Emission Trend by Sector, 1985-1999

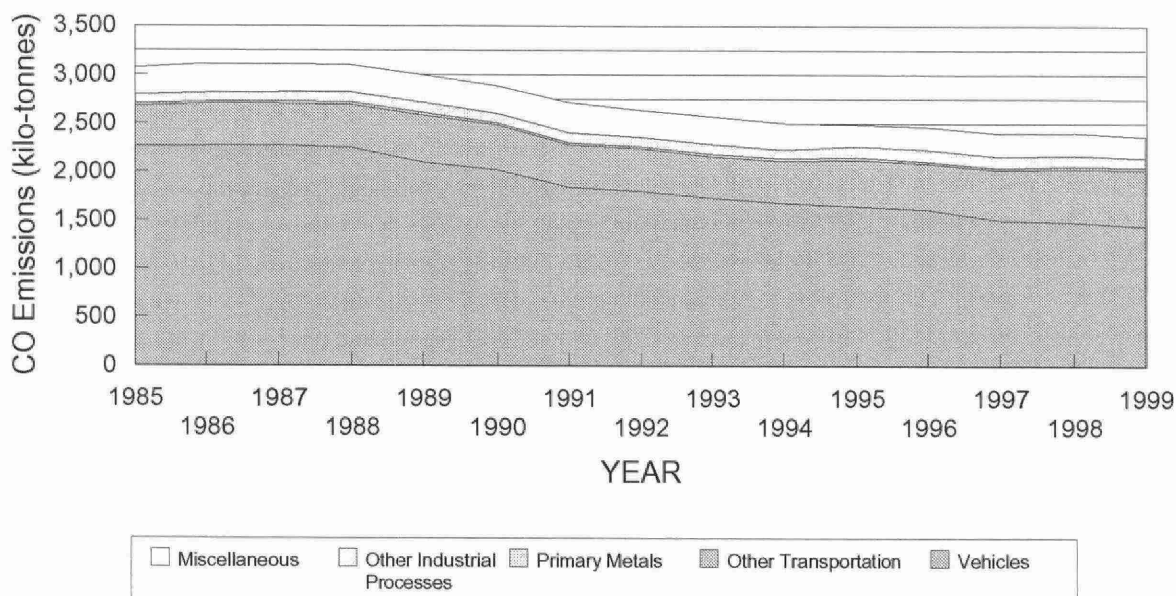


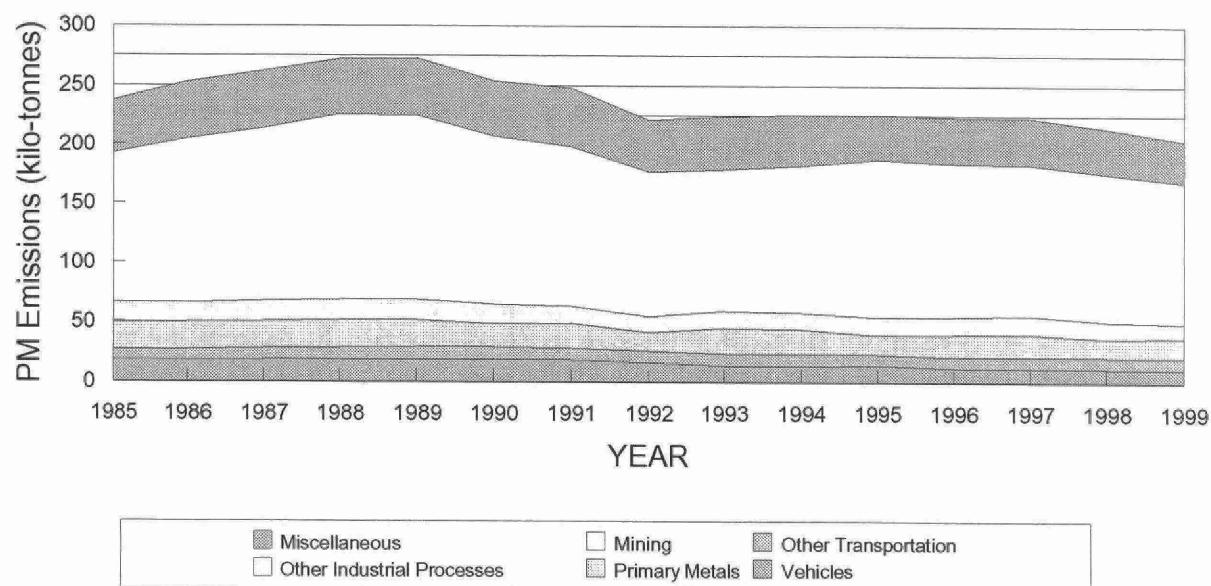
Table A8. Ontario PM Emission Trend by Sector, 1985-1999

(Kilo-tonnes)

SECTOR	Emissions [1]														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
AREA SOURCES [2]															
Total Vehicles	18.1	18.2	18.5	19.1	18.7	18.9	18.5	16.4	13.8	13.2	14.5	12.2	11.7	11.3	10.9
Off-Highway Engines	6.4	6.6	7.0	7.1	7.3	7.5	7.1	7.0	7.4	7.7	5.5	5.8	5.8	6.2	6.6
Railroad	0.7	0.6	0.6	0.9	1.0	0.8	0.9	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.7
Aircraft	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9	0.9	0.9	1.0	1.0
Marine	1.3	1.6	1.6	1.6	1.9	1.7	1.6	1.6	1.5	1.4	1.9	1.8	2.0	2.1	1.7
Residential	27.6	29.5	29.1	28.2	28.4	29.2	33.3	28.5	28.9	27.0	22.3	23.1	25.2	24.2	22.4
Commercial	0.6	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.5	0.5	1.1	0.8	1.1	1.0	1.0
Industrial	6.8	7.3	7.9	8.6	8.6	8.1	7.5	6.9	7.0	7.6	7.8	8.5	6.9	7.1	5.9
Incineration	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9
Fires	8.9	9.9	9.6	7.8	9.4	7.9	7.7	7.4	8.0	7.7	6.5	6.0	5.6	5.7	5.7
Dry Cleaning	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Surface Coating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
General Solvent Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Marketing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc. Processes	62.7	65.8	71.0	76.3	77.3	75.1	70.7	65.9	64.2	69.6	74.8	74.9	66.1	65.3	57.5
SUBTOTAL [4]	134.1	141.2	146.9	151.2	154.2	151.0	148.5	136.0	133.1	136.6	136.8	135.6	127.0	125.4	114.4
POINT SOURCES															
Electric Utilities	3.8	6.9	9.4	11.2	10.6	8.2	9.0	8.6	5.8	4.7	5.0	2.1	2.8	3.4	10.3
Non-Iron Smelters	9.0	8.5	8.6	8.5	8.4	8.7	8.9	9.7	10.0	8.4	10.1	9.9	10.5	10.5	10.5
Other Primary Metals	23.0	23.1	23.0	23.0	22.9	19.3	21.1	15.3	21.3	20.9	16.0	18.6	19.5	15.5	16.8
Petroleum Refineries	3.3	3.1	3.3	3.3	3.5	3.2	2.9	2.9	2.9	3.0	3.0	3.1	3.2	3.2	3.2
Pulp & Paper	27.6	32.2	30.7	30.3	29.4	26.7	25.4	17.8	18.9	20.1	22.2	21.6	23.9	20.8	16.3
Chemicals	6.3	6.6	6.8	7.5	7.3	2.4	2.0	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0
Other Manufacturing	12.9	15.0	16.1	19.7	18.8	17.0	15.1	14.5	14.6	15.3	14.9	14.9	17.6	18.2	17.8
Mining	17.1	16.1	17.1	17.3	17.2	16.7	14.4	13.5	14.7	13.9	15.1	15.1	15.6	14.5	12.2
Miscellaneous [3]	0.3	0.3	0.3	0.3	0.3	1.1	1.1	1.0	1.0	1.0	1.3	1.2	1.3	1.3	1.3
SUBTOTAL [4]	103.2	111.9	115.3	121.1	118.4	103.2	99.8	85.2	91.3	89.3	89.3	88.4	96.4	89.4	90.4
ONTARIO TOTAL [4]	237.3	253.0	262.2	272.3	272.6	254.2	248.4	221.2	224.4	225.9	226.1	224.0	223.5	214.8	204.8

- Notes: [1] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.
 [2] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
 [3] Includes commercial and major institutional emissions.
 [4] Components may not add up to totals due to rounding.
 [5] Zero values represent no emissions or emissions less than 50 tonnes per year.

Figure A8. Ontario PM Emission Trend by Sector, 1985-1999



**Table A9. Ontario Standard Pollutants Emissions
- 1985**

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	15.6 (1.1)	287.8 (43.9)	261.6 (31.1)	2,269.1 (73.9)	18.1 (7.6)
Off-Highway Engines	6.0 (0.4)	72.7 (11.1)	33.2 (4.0)	357.3 (11.6)	6.4 (2.7)
Railroad	2.2 (0.1)	27.8 (4.2)	1.3 (0.2)	5.3 (0.2)	0.7 (0.3)
Aircraft	0.3 (0.0)	4.9 (0.8)	1.9 (0.2)	11.5 (0.4)	0.2 (0.1)
Marine	16.0 (1.1)	8.5 (1.3)	11.4 (1.4)	34.7 (1.1)	1.3 (0.6)
Residential [2]	8.1 (0.6)	15.8 (2.4)	108.4 (12.9)	198.4 (6.5)	27.6 (11.6)
Commercial [2]	3.9 (0.3)	8.6 (1.3)	0.3 (0.0)	1.8 (0.1)	0.6 (0.2)
Industrial [2]	10.5 (0.7)	11.6 (1.8)	0.5 (0.1)	8.8 (0.3)	6.8 (2.9)
Incineration	0.2 (0.0)	0.4 (0.1)	1.8 (0.2)	18.1 (0.6)	0.8 (0.3)
Fires	0.0 (0.0)	0.7 (0.1)	4.7 (0.6)	44.8 (1.5)	8.9 (3.8)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.5 (0.7)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	110.3 (13.1)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	114.8 (13.7)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	33.7 (4.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	6.3 (0.8)	1.1 (0.0)	62.7 (26.4)
SUBTOTAL [5]	62.8 (4.3)	438.7 (66.9)	695.6 (82.8)	2,951.0 (96.2)	134.1 (56.5)
POINT SOURCES					
Electric Utilities	336.7 (23.3)	94.4 (14.4)	0.2 (0.0)	6.9 (0.2)	3.8 (1.6)
Non-Iron Smelters	771.2 (53.4)	49.0 (7.5)	0.3 (0.0)	0.0 (0.0)	9.0 (3.8)
Other Primary Metals	47.6 (3.3)	18.7 (2.8)	24.7 (2.9)	25.1 (0.8)	23.0 (9.7)
Petroleum Refineries	63.8 (4.4)	14.3 (2.2)	34.9 (4.2)	5.1 (0.2)	3.3 (1.4)
Pulp & Paper	20.0 (1.4)	9.4 (1.4)	7.6 (0.9)	28.7 (0.9)	27.6 (11.6)
Chemicals	5.1 (0.4)	6.3 (1.0)	15.8 (1.9)	11.4 (0.4)	6.3 (2.7)
Other Manufacturing	24.2 (1.7)	22.2 (3.4)	59.7 (7.1)	17.6 (0.6)	12.9 (5.4)
Mining	112.6 (7.8)	1.1 (0.2)	0.7 (0.1)	20.7 (0.7)	17.1 (7.2)
Miscellaneous [4]	0.5 (0.0)	1.9 (0.3)	0.7 (0.1)	2.0 (0.1)	0.3 (0.1)
SUBTOTAL [5]	1,381.7 (95.7)	217.3 (33.1)	144.5 (17.2)	117.5 (3.8)	103.2 (43.5)
ONTARIO TOTAL [5]	1,444.5 (100)	656.0 (100)	840.1 (100)	3,068.4 (100)	237.3 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A10. Ontario Standard Pollutants Emissions
- 1986

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	16.0 (1.2)	286.7 (44.3)	263.5 (30.7)	2,272.0 (73.1)	18.2 (7.2)
Off-Highway Engines	5.9 (0.4)	75.1 (11.6)	35.8 (4.2)	376.4 (12.1)	6.6 (2.6)
Railroad	1.8 (0.1)	24.6 (3.8)	1.2 (0.1)	4.7 (0.2)	0.6 (0.2)
Aircraft	0.4 (0.0)	5.2 (0.8)	2.0 (0.2)	11.3 (0.4)	0.3 (0.1)
Marine	16.7 (1.3)	11.5 (1.8)	12.2 (1.4)	36.3 (1.2)	1.6 (0.6)
Residential [2]	9.5 (0.7)	14.1 (2.2)	116.2 (13.5)	212.1 (6.8)	29.5 (11.7)
Commercial [2]	4.2 (0.3)	7.7 (1.2)	0.3 (0.0)	1.6 (0.1)	0.5 (0.2)
Industrial [2]	14.5 (1.1)	13.0 (2.0)	0.5 (0.1)	9.3 (0.3)	7.3 (2.9)
Incineration	0.2 (0.0)	0.4 (0.1)	1.8 (0.2)	19.0 (0.6)	0.8 (0.3)
Fires	0.0 (0.0)	0.8 (0.1)	5.0 (0.6)	50.0 (1.6)	9.9 (3.9)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.6 (0.6)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	112.2 (13.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	116.1 (13.5)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	34.1 (4.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	6.7 (0.8)	1.1 (0.0)	65.8 (26.0)
SUBTOTAL [5]	69.3 (5.2)	439.0 (67.8)	713.1 (83.0)	2,993.9 (96.3)	141.2 (55.8)
POINT SOURCES					
Electric Utilities	269.8 (20.3)	77.4 (12.0)	0.2 (0.0)	2.8 (0.1)	6.9 (2.7)
Non-Iron Smelters	728.1 (54.7)	49.6 (7.7)	0.3 (0.0)	0.0 (0.0)	8.5 (3.4)
Other Primary Metals	50.8 (3.8)	21.4 (3.3)	25.1 (2.9)	23.6 (0.8)	23.1 (9.1)
Petroleum Refineries	59.9 (4.5)	14.5 (2.2)	33.0 (3.8)	4.8 (0.2)	3.1 (1.2)
Pulp & Paper	21.5 (1.6)	9.6 (1.5)	8.2 (1.0)	29.5 (0.9)	32.2 (12.7)
Chemicals	5.8 (0.4)	6.9 (1.1)	16.9 (2.0)	12.2 (0.4)	6.6 (2.6)
Other Manufacturing	28.3 (2.1)	26.0 (4.0)	61.1 (7.1)	20.4 (0.7)	15.0 (5.9)
Mining	96.6 (7.3)	1.0 (0.2)	0.6 (0.1)	18.5 (0.6)	16.1 (6.4)
Miscellaneous [4]	0.5 (0.0)	1.9 (0.3)	1.0 (0.1)	2.1 (0.1)	0.3 (0.1)
SUBTOTAL [5]	1,261.4 (94.8)	208.2 (32.2)	146.4 (17.0)	113.8 (3.7)	111.9 (44.2)
ONTARIO TOTAL [5]	1,330.7 (100)	647.2 (100)	859.5 (100)	3,107.7 (100)	253.0 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A11. Ontario Standard Pollutants Emissions
- 1987

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	17.1 (1.2)	285.8 (42.6)	262.3 (30.2)	2,278.6 (73.3)	18.5 (7.1)
Off-Highway Engines	6.2 (0.4)	78.6 (11.7)	36.4 (4.2)	369.4 (11.9)	7.0 (2.7)
Railroad	1.8 (0.1)	25.3 (3.8)	1.2 (0.1)	4.9 (0.2)	0.6 (0.2)
Aircraft	0.4 (0.0)	5.4 (0.8)	2.1 (0.2)	12.6 (0.4)	0.3 (0.1)
Marine	19.4 (1.4)	9.8 (1.5)	11.9 (1.4)	36.0 (1.2)	1.6 (0.6)
Residential [2]	8.4 (0.6)	15.6 (2.3)	114.7 (13.2)	209.9 (6.7)	29.1 (11.1)
Commercial [2]	4.0 (0.3)	6.3 (0.9)	0.2 (0.0)	1.4 (0.0)	0.5 (0.2)
Industrial [2]	14.9 (1.1)	14.4 (2.1)	0.6 (0.1)	10.3 (0.3)	7.9 (3.0)
Incineration	0.2 (0.0)	0.4 (0.1)	1.8 (0.2)	18.9 (0.6)	0.8 (0.3)
Fires	0.0 (0.0)	0.7 (0.1)	4.9 (0.6)	48.2 (1.5)	9.6 (3.6)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.6 (0.7)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	114.9 (13.3)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	118.1 (13.6)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	34.9 (4.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.3 (0.8)	1.1 (0.0)	71.0 (27.1)
SUBTOTAL [5]	72.5 (5.2)	442.4 (65.9)	716.9 (82.7)	2,991.1 (96.2)	146.9 (56.0)
POINT SOURCES					
Electric Utilities	332.5 (24.0)	94.5 (14.1)	0.2 (0.0)	3.6 (0.1)	9.4 (3.6)
Non-Iron Smelters	726.4 (52.4)	49.7 (7.4)	0.3 (0.0)	0.0 (0.0)	8.6 (3.3)
Other Primary Metals	50.1 (3.6)	21.6 (3.2)	24.9 (2.9)	24.6 (0.8)	23.0 (8.8)
Petroleum Refineries	64.0 (4.6)	15.1 (2.2)	35.2 (4.1)	5.1 (0.2)	3.3 (1.3)
Pulp & Paper	19.0 (1.4)	10.0 (1.5)	9.2 (1.1)	31.0 (1.0)	30.7 (11.7)
Chemicals	6.0 (0.4)	7.1 (1.1)	17.8 (2.1)	12.7 (0.4)	6.8 (2.6)
Other Manufacturing	30.7 (2.2)	27.8 (4.1)	61.1 (7.0)	21.3 (0.7)	16.1 (6.1)
Mining	84.6 (6.1)	1.1 (0.2)	0.7 (0.1)	19.2 (0.6)	17.1 (6.5)
Miscellaneous [4]	0.5 (0.0)	1.9 (0.3)	1.0 (0.1)	2.1 (0.1)	0.3 (0.1)
SUBTOTAL [5]	1,313.8 (94.8)	228.9 (34.1)	150.4 (17.3)	119.5 (3.8)	115.3 (44.0)
ONTARIO TOTAL [5]	1,386.4 (100)	671.3 (100)	867.3 (100)	3,110.6 (100)	262.2 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A12. Ontario Standard Pollutants Emissions
- 1988

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	17.5 (1.3)	285.7 (41.7)	259.4 (29.8)	2,250.9 (72.6)	19.1 (7.0)
Off-Highway Engines	6.1 (0.4)	76.5 (11.2)	37.8 (4.3)	383.1 (12.4)	7.1 (2.6)
Railroad	2.6 (0.2)	35.5 (5.2)	1.7 (0.2)	6.8 (0.2)	0.9 (0.3)
Aircraft	0.4 (0.0)	5.8 (0.8)	2.2 (0.3)	13.0 (0.4)	0.3 (0.1)
Marine	18.8 (1.4)	9.7 (1.4)	12.1 (1.4)	36.5 (1.2)	1.6 (0.6)
Residential [2]	8.2 (0.6)	16.4 (2.4)	111.3 (12.8)	204.1 (6.6)	28.2 (10.4)
Commercial [2]	4.4 (0.3)	7.1 (1.0)	0.3 (0.0)	1.5 (0.0)	0.5 (0.2)
Industrial [2]	16.3 (1.2)	15.9 (2.3)	0.6 (0.1)	11.2 (0.4)	8.6 (3.2)
Incineration	0.2 (0.0)	0.4 (0.1)	1.8 (0.2)	19.1 (0.6)	0.8 (0.3)
Fires	0.0 (0.0)	0.5 (0.1)	4.5 (0.5)	42.4 (1.4)	7.8 (2.9)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.7 (0.7)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	116.8 (13.4)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	120.2 (13.8)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	36.0 (4.1)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.8 (0.9)	1.1 (0.0)	76.3 (28.0)
SUBTOTAL [5]	74.4 (5.5)	453.5 (66.1)	718.2 (82.5)	2,969.7 (95.8)	151.2 (55.5)
POINT SOURCES					
Electric Utilities	320.6 (23.6)	92.4 (13.5)	0.2 (0.0)	4.0 (0.1)	11.2 (4.1)
Non-Iron Smelters	704.3 (51.9)	47.3 (6.9)	0.2 (0.0)	0.0 (0.0)	8.5 (3.1)
Other Primary Metals	50.1 (3.7)	21.4 (3.1)	24.9 (2.9)	24.8 (0.8)	23.0 (8.5)
Petroleum Refineries	64.6 (4.8)	15.6 (2.3)	35.6 (4.1)	5.2 (0.2)	3.3 (1.2)
Pulp & Paper	18.8 (1.4)	9.8 (1.4)	9.0 (1.0)	30.4 (1.0)	30.3 (11.1)
Chemicals	7.7 (0.6)	8.3 (1.2)	18.8 (2.2)	13.6 (0.4)	7.5 (2.7)
Other Manufacturing	36.2 (2.7)	34.1 (5.0)	61.6 (7.1)	27.7 (0.9)	19.7 (7.3)
Mining	78.6 (5.8)	1.1 (0.2)	0.7 (0.1)	21.0 (0.7)	17.3 (6.3)
Miscellaneous [4]	0.5 (0.0)	2.0 (0.3)	1.1 (0.1)	2.1 (0.1)	0.3 (0.1)
SUBTOTAL [5]	1,281.3 (94.5)	232.1 (33.9)	152.2 (17.5)	128.7 (4.2)	121.1 (44.5)
ONTARIO TOTAL [5]	1,355.7 (100)	685.6 (100)	870.3 (100)	3,098.4 (100)	272.3 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A13. Ontario Standard Pollutants Emissions
- 1989

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	20.0 (1.5)	275.4 (39.8)	241.3 (28.0)	2,099.5 (70.0)	18.7 (6.8)
Off-Highway Engines	6.8 (0.5)	80.3 (11.6)	41.0 (4.8)	426.1 (14.2)	7.3 (2.7)
Railroad	3.1 (0.2)	39.5 (5.7)	1.9 (0.2)	7.6 (0.3)	1.0 (0.4)
Aircraft	0.4 (0.0)	5.9 (0.9)	2.3 (0.3)	13.2 (0.4)	0.3 (0.1)
Marine	20.6 (1.5)	11.6 (1.7)	12.6 (1.5)	37.9 (1.3)	1.9 (0.7)
Residential [2]	8.9 (0.7)	17.4 (2.5)	112.0 (13.0)	205.5 (6.9)	28.4 (10.4)
Commercial [2]	4.4 (0.3)	7.8 (1.1)	0.3 (0.0)	1.6 (0.1)	0.6 (0.2)
Industrial [2]	13.8 (1.0)	15.3 (2.2)	0.6 (0.1)	11.4 (0.4)	8.6 (3.2)
Incineration	0.2 (0.0)	0.4 (0.1)	1.9 (0.2)	19.4 (0.6)	0.8 (0.3)
Fires	0.0 (0.0)	0.7 (0.1)	4.9 (0.6)	47.2 (1.6)	9.4 (3.4)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.8 (0.7)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	119.2 (13.8)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	122.2 (14.2)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	36.8 (4.3)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	8.0 (0.9)	1.1 (0.0)	77.3 (28.4)
SUBTOTAL [5]	78.1 (5.8)	454.2 (65.6)	710.6 (82.4)	2,870.5 (95.7)	154.2 (56.6)
POINT SOURCES					
Electric Utilities	305.5 (22.8)	96.5 (13.9)	0.2 (0.0)	4.1 (0.1)	10.6 (3.9)
Non-Iron Smelters	707.3 (52.9)	52.0 (7.5)	0.3 (0.0)	0.0 (0.0)	8.4 (3.1)
Other Primary Metals	49.5 (3.7)	20.3 (2.9)	24.4 (2.8)	25.8 (0.9)	22.9 (8.4)
Petroleum Refineries	67.5 (5.0)	15.9 (2.3)	37.2 (4.3)	5.4 (0.2)	3.5 (1.3)
Pulp & Paper	18.7 (1.4)	9.9 (1.4)	8.7 (1.0)	30.5 (1.0)	29.4 (10.8)
Chemicals	7.3 (0.5)	8.1 (1.2)	18.9 (2.2)	13.5 (0.5)	7.3 (2.7)
Other Manufacturing	34.6 (2.6)	32.5 (4.7)	60.3 (7.0)	26.3 (0.9)	18.8 (6.9)
Mining	68.6 (5.1)	1.1 (0.2)	0.7 (0.1)	20.1 (0.7)	17.2 (6.3)
Miscellaneous [4]	0.5 (0.0)	2.0 (0.3)	0.8 (0.1)	2.1 (0.1)	0.3 (0.1)
SUBTOTAL [5]	1,259.6 (94.2)	238.4 (34.4)	151.5 (17.6)	127.8 (4.3)	118.4 (43.4)
ONTARIO TOTAL [5]	1,337.7 (100)	692.7 (100)	862.1 (100)	2,998.3 (100)	272.6 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A14. Ontario Standard Pollutants Emissions
- 1990

(Kilo-tonnes)

SECTOR	S02 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	21.3 (1.8)	270.2 (41.0)	229.2 (27.2)	2,019.5 (70.0)	18.9 (7.4)
Off-Highway Engines	7.3 (0.6)	81.6 (12.4)	41.1 (4.9)	409.5 (14.2)	7.5 (3.0)
Railroad	2.7 (0.2)	32.6 (5.0)	1.5 (0.2)	6.3 (0.2)	0.8 (0.3)
Aircraft	0.4 (0.0)	5.5 (0.8)	2.1 (0.3)	13.1 (0.5)	0.3 (0.1)
Marine	19.8 (1.7)	10.5 (1.6)	12.6 (1.5)	38.4 (1.3)	1.7 (0.7)
Residential [2]	8.5 (0.7)	16.1 (2.4)	115.6 (13.7)	211.7 (7.3)	29.2 (11.5)
Commercial [2]	3.9 (0.3)	7.0 (1.1)	0.2 (0.0)	1.5 (0.1)	0.5 (0.2)
Industrial [2]	10.3 (0.9)	13.9 (2.1)	0.6 (0.1)	11.0 (0.4)	8.1 (3.2)
Incineration	0.2 (0.0)	0.4 (0.1)	1.8 (0.2)	18.6 (0.6)	0.8 (0.3)
Fires	0.0 (0.0)	0.6 (0.1)	4.4 (0.5)	41.5 (1.4)	7.9 (3.1)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.9 (0.7)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	121.6 (14.4)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	124.2 (14.7)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	35.3 (4.2)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.6 (0.9)	1.1 (0.0)	75.1 (29.6)
SUBTOTAL [5]	74.3 (6.4)	438.5 (66.6)	704.1 (83.5)	2,772.2 (96.0)	151.0 (59.4)
POINT SOURCES					
Electric Utilities	196.6 (17.0)	77.8 (11.8)	0.2 (0.0)	2.9 (0.1)	8.2 (3.2)
Non-Iron Smelters	694.0 (60.1)	52.1 (7.9)	0.3 (0.0)	0.1 (0.0)	8.7 (3.4)
Other Primary Metals	28.3 (2.5)	16.6 (2.5)	21.7 (2.6)	20.6 (0.7)	19.3 (7.6)
Petroleum Refineries	60.9 (5.3)	16.6 (2.5)	34.7 (4.1)	5.0 (0.2)	3.2 (1.3)
Pulp & Paper	16.8 (1.5)	12.1 (1.8)	14.1 (1.7)	33.0 (1.1)	26.7 (10.5)
Chemicals	11.3 (1.0)	10.0 (1.5)	21.7 (2.6)	13.4 (0.5)	2.4 (0.9)
Other Manufacturing	24.4 (2.1)	30.7 (4.7)	41.6 (4.9)	19.8 (0.7)	17.0 (6.7)
Mining	48.1 (4.2)	1.8 (0.3)	0.6 (0.1)	17.7 (0.6)	16.7 (6.6)
Miscellaneous [4]	0.7 (0.1)	2.5 (0.4)	4.3 (0.5)	1.8 (0.1)	1.1 (0.4)
SUBTOTAL [5]	1,081.1 (93.6)	220.2 (33.4)	139.2 (16.5)	114.2 (4.0)	103.2 (40.6)
ONTARIO TOTAL [5]	1,155.4 (100)	658.7 (100)	843.3 (100)	2,886.3 (100)	254.2 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A15. Ontario Standard Pollutants Emissions
- 1991

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	23.7 (2.2)	251.6 (42.9)	197.8 (24.0)	1,839.7 (67.8)	18.5 (7.4)
Off-Highway Engines	7.7 (0.7)	74.0 (12.6)	40.4 (4.9)	380.1 (14.0)	7.1 (2.8)
Railroad	3.4 (0.3)	35.2 (6.0)	1.7 (0.2)	6.8 (0.2)	0.9 (0.3)
Aircraft	0.4 (0.0)	5.0 (0.9)	2.0 (0.2)	12.2 (0.4)	0.3 (0.1)
Marine	19.7 (1.8)	9.7 (1.7)	13.3 (1.6)	40.7 (1.5)	1.6 (0.7)
Residential [2]	7.5 (0.7)	16.2 (2.8)	132.0 (16.0)	241.1 (8.9)	33.3 (13.4)
Commercial [2]	2.6 (0.2)	7.3 (1.2)	0.3 (0.0)	1.5 (0.1)	0.4 (0.2)
Industrial [2]	6.8 (0.6)	12.2 (2.1)	0.6 (0.1)	10.3 (0.4)	7.5 (3.0)
Incineration	0.2 (0.0)	0.4 (0.1)	1.6 (0.2)	16.2 (0.6)	0.7 (0.3)
Fires	0.0 (0.0)	0.5 (0.1)	4.2 (0.5)	38.1 (1.4)	7.7 (3.1)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	5.4 (0.6)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	110.0 (13.4)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	129.5 (15.7)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	34.6 (4.2)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.2 (0.9)	1.1 (0.0)	70.7 (28.4)
SUBTOTAL [5]	72.0 (6.7)	412.0 (70.3)	680.4 (82.6)	2,587.9 (95.4)	148.5 (59.8)
POINT SOURCES					
Electric Utilities	168.3 (15.7)	85.9 (14.7)	0.6 (0.1)	3.0 (0.1)	9.0 (3.6)
Non-Iron Smelters	642.6 (60.0)	4.4 (0.7)	0.0 (0.0)	0.0 (0.0)	8.9 (3.6)
Other Primary Metals	28.9 (2.7)	17.0 (2.9)	28.5 (3.5)	20.4 (0.8)	21.1 (8.5)
Petroleum Refineries	56.6 (5.3)	14.2 (2.4)	34.4 (4.2)	4.7 (0.2)	2.9 (1.2)
Pulp & Paper	15.2 (1.4)	11.0 (1.9)	13.0 (1.6)	31.2 (1.1)	25.4 (10.2)
Chemicals	10.1 (0.9)	10.0 (1.7)	21.3 (2.6)	17.7 (0.7)	2.0 (0.8)
Other Manufacturing	20.9 (1.9)	26.2 (4.5)	40.6 (4.9)	19.8 (0.7)	15.1 (6.1)
Mining	56.4 (5.3)	1.9 (0.3)	0.9 (0.1)	27.5 (1.0)	14.4 (5.8)
Miscellaneous [4]	0.7 (0.1)	3.1 (0.5)	4.3 (0.5)	1.9 (0.1)	1.1 (0.4)
SUBTOTAL [5]	999.7 (93.3)	173.7 (29.7)	143.6 (17.4)	126.1 (4.6)	99.8 (40.2)
ONTARIO TOTAL [5]	1,071.7 (100)	585.8 (100)	824.0 (100)	2,714.0 (100)	248.4 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A16. Ontario Standard Pollutants Emissions
- 1992

(Kilo-tonnes)

SECTOR	SO2	(%)	NOX	(%)	VOC	(%)	CO	(%)	PM	(%)
AREA SOURCES [1]										
Total Vehicles	25.2	(2.9)	244.2	(42.9)	189.7	(24.1)	1,801.2	(68.4)	16.4	(7.4)
Off-Highway Engines	7.4	(0.8)	72.6	(12.7)	41.3	(5.3)	377.8	(14.3)	7.0	(3.2)
Railroad	3.2	(0.4)	34.7	(6.1)	1.6	(0.2)	6.7	(0.3)	0.8	(0.4)
Aircraft	0.4	(0.0)	5.1	(0.9)	2.0	(0.3)	11.5	(0.4)	0.3	(0.1)
Marine	21.2	(2.4)	9.2	(1.6)	14.2	(1.8)	44.0	(1.7)	1.6	(0.7)
Residential [2]	7.0	(0.8)	17.0	(3.0)	112.9	(14.4)	207.1	(7.9)	28.5	(12.9)
Commercial [2]	2.3	(0.3)	7.8	(1.4)	0.3	(0.0)	1.6	(0.1)	0.4	(0.2)
Industrial [2]	6.1	(0.7)	10.9	(1.9)	0.5	(0.1)	9.4	(0.4)	6.9	(3.1)
Incineration	0.3	(0.0)	0.4	(0.1)	1.7	(0.2)	16.5	(0.6)	0.7	(0.3)
Fires	0.0	(0.0)	0.5	(0.1)	4.3	(0.5)	40.5	(1.5)	7.4	(3.3)
Dry Cleaning	0.0	(0.0)	0.0	(0.0)	4.8	(0.6)	0.0	(0.0)	0.0	(0.0)
Surface Coating	0.0	(0.0)	0.0	(0.0)	98.5	(12.5)	0.0	(0.0)	0.0	(0.0)
General Solvent Use	0.0	(0.0)	0.0	(0.0)	134.7	(17.1)	0.0	(0.0)	0.0	(0.0)
Fuel Marketing	0.0	(0.0)	0.0	(0.0)	34.9	(4.4)	0.0	(0.0)	0.0	(0.0)
Misc. Processes [3]	0.0	(0.0)	0.0	(0.0)	6.7	(0.9)	1.1	(0.0)	65.9	(29.8)
SUBTOTAL [5]	73.0	(8.3)	402.3	(70.7)	648.0	(82.5)	2,517.5	(95.6)	136.0	(61.5)
POINT SOURCES										
Electric Utilities	158.4	(18.0)	81.1	(14.2)	0.6	(0.1)	2.8	(0.1)	8.6	(3.9)
Non-Iron Smelters	480.4	(54.6)	3.2	(0.6)	0.0	(0.0)	0.1	(0.0)	9.7	(4.4)
Other Primary Metals	29.8	(3.4)	16.4	(2.9)	26.6	(3.4)	20.6	(0.8)	15.3	(6.9)
Petroleum Refineries	57.6	(6.5)	15.2	(2.7)	31.8	(4.0)	4.6	(0.2)	2.9	(1.3)
Pulp & Paper	9.9	(1.1)	10.3	(1.8)	12.8	(1.6)	30.7	(1.2)	17.8	(8.0)
Chemicals	11.3	(1.3)	10.6	(1.9)	20.0	(2.6)	17.9	(0.7)	1.9	(0.9)
Other Manufacturing	19.4	(2.2)	25.2	(4.4)	41.0	(5.2)	19.5	(0.7)	14.5	(6.5)
Mining	39.2	(4.5)	1.7	(0.3)	0.6	(0.1)	18.6	(0.7)	13.5	(6.1)
Miscellaneous [4]	1.0	(0.1)	3.2	(0.6)	4.2	(0.5)	1.8	(0.1)	1.0	(0.4)
SUBTOTAL [5]	807.1	(91.7)	166.8	(29.3)	137.6	(17.5)	116.7	(4.4)	85.2	(38.5)
ONTARIO TOTAL [5]	880.1	(100)	569.1	(100)	785.5	(100)	2,634.3	(100)	221.2	(100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A17. Ontario Standard Pollutants Emissions

- 1993

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	24.4 (3.1)	234.8 (43.7)	179.7 (23.1)	1,728.8 (67.3)	13.8 (6.2)
Off-Highway Engines	7.3 (0.9)	76.9 (14.3)	42.0 (5.4)	368.9 (14.4)	7.4 (3.3)
Railroad	2.9 (0.4)	34.4 (6.4)	1.6 (0.2)	6.6 (0.3)	0.8 (0.4)
Aircraft	0.4 (0.0)	5.0 (0.9)	1.9 (0.2)	11.1 (0.4)	0.3 (0.1)
Marine	20.7 (2.7)	8.2 (1.5)	14.2 (1.8)	44.2 (1.7)	1.5 (0.7)
Residential [2]	8.1 (1.0)	17.9 (3.3)	114.6 (14.7)	210.4 (8.2)	28.9 (12.9)
Commercial [2]	3.0 (0.4)	8.4 (1.6)	0.3 (0.0)	1.7 (0.1)	0.5 (0.2)
Industrial [2]	10.1 (1.3)	10.9 (2.0)	0.5 (0.1)	9.0 (0.4)	7.0 (3.1)
Incineration	0.3 (0.0)	0.4 (0.1)	1.6 (0.2)	16.4 (0.6)	0.7 (0.3)
Fires	0.0 (0.0)	0.6 (0.1)	4.6 (0.6)	44.6 (1.7)	8.0 (3.5)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	4.2 (0.5)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	86.9 (11.2)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	140.0 (18.0)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	35.2 (4.5)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	6.4 (0.8)	1.1 (0.0)	64.2 (28.6)
SUBTOTAL [5]	77.1 (9.9)	397.4 (74.0)	633.7 (81.5)	2,442.7 (95.1)	133.1 (59.3)
POINT SOURCES					
Electric Utilities	97.2 (12.5)	54.9 (10.2)	0.5 (0.1)	1.9 (0.1)	5.8 (2.6)
Non-Iron Smelters	420.1 (54.2)	2.7 (0.5)	0.0 (0.0)	0.1 (0.0)	10.0 (4.5)
Other Primary Metals	30.5 (3.9)	16.9 (3.1)	23.8 (3.1)	21.2 (0.8)	21.3 (9.5)
Petroleum Refineries	53.1 (6.9)	14.7 (2.7)	29.0 (3.7)	4.5 (0.2)	2.9 (1.3)
Pulp & Paper	10.4 (1.3)	10.6 (2.0)	14.8 (1.9)	32.4 (1.3)	18.9 (8.4)
Chemicals	12.3 (1.6)	9.0 (1.7)	21.7 (2.8)	18.8 (0.7)	2.0 (0.9)
Other Manufacturing	19.9 (2.6)	26.1 (4.9)	48.9 (6.3)	20.0 (0.8)	14.6 (6.5)
Mining	53.7 (6.9)	1.8 (0.3)	0.9 (0.1)	25.8 (1.0)	14.7 (6.6)
Miscellaneous [4]	1.0 (0.1)	3.3 (0.6)	4.2 (0.5)	1.9 (0.1)	1.0 (0.4)
SUBTOTAL [5]	698.4 (90.1)	140.0 (26.0)	143.8 (18.5)	126.5 (4.9)	91.3 (40.7)
ONTARIO TOTAL [5]	775.4 (100)	537.4 (100)	777.4 (100)	2,569.2 (100)	224.4 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A18. Ontario Standard Pollutants Emissions
- 1994

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)
AREA SOURCES [1]					
Total Vehicles	24.5 (4.2)	228.1 (43.4)	172.8 (22.9)	1,680.5 (67.2)	13.2 (5.8)
Off-Highway Engines	7.2 (1.2)	80.8 (15.4)	42.3 (5.6)	370.5 (14.8)	7.7 (3.4)
Railroad	2.6 (0.5)	34.1 (6.5)	1.6 (0.2)	6.5 (0.3)	0.8 (0.4)
Aircraft	0.4 (0.1)	5.2 (1.0)	2.0 (0.3)	11.2 (0.4)	0.3 (0.1)
Marine	19.4 (3.3)	8.2 (1.6)	14.3 (1.9)	44.4 (1.8)	1.4 (0.6)
Residential [2]	7.4 (1.3)	18.3 (3.5)	106.7 (14.2)	196.4 (7.8)	27.0 (11.9)
Commercial [2]	2.9 (0.5)	8.1 (1.5)	0.3 (0.0)	1.6 (0.1)	0.5 (0.2)
Industrial [2]	11.0 (1.9)	11.8 (2.2)	0.5 (0.1)	9.6 (0.4)	7.6 (3.4)
Incineration	0.3 (0.0)	0.4 (0.1)	1.7 (0.2)	17.4 (0.7)	0.8 (0.3)
Fires	0.0 (0.0)	0.5 (0.1)	4.6 (0.6)	44.9 (1.8)	7.7 (3.4)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	3.6 (0.5)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	75.3 (10.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	145.2 (19.3)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	35.6 (4.7)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.1 (0.9)	1.1 (0.0)	69.6 (30.8)
SUBTOTAL [5]	75.7 (12.9)	395.3 (75.2)	613.6 (81.4)	2,384.2 (95.3)	136.6 (60.5)
POINT SOURCES					
Electric Utilities	108.6 (18.5)	44.8 (8.5)	0.4 (0.1)	1.6 (0.1)	4.7 (2.1)
Non-Iron Smelters	224.9 (38.4)	1.4 (0.3)	0.0 (0.0)	0.1 (0.0)	8.4 (3.7)
Other Primary Metals	30.3 (5.2)	16.9 (3.2)	24.3 (3.2)	21.6 (0.9)	20.9 (9.2)
Petroleum Refineries	62.0 (10.6)	15.4 (2.9)	26.9 (3.6)	4.8 (0.2)	3.0 (1.3)
Pulp & Paper	10.0 (1.7)	9.9 (1.9)	13.7 (1.8)	30.6 (1.2)	20.1 (8.9)
Chemicals	12.7 (2.2)	8.4 (1.6)	20.4 (2.7)	18.7 (0.7)	1.9 (0.8)
Other Manufacturing	23.0 (3.9)	28.8 (5.5)	49.6 (6.6)	21.3 (0.8)	15.3 (6.8)
Mining	37.8 (6.5)	1.7 (0.3)	0.6 (0.1)	17.9 (0.7)	13.9 (6.2)
Miscellaneous [4]	1.1 (0.2)	3.4 (0.6)	4.5 (0.6)	1.9 (0.1)	1.0 (0.5)
SUBTOTAL [5]	510.3 (87.1)	130.7 (24.8)	140.5 (18.6)	118.3 (4.7)	89.3 (39.5)
ONTARIO TOTAL [5]	586.1 (100)	526.0 (100)	754.1 (100)	2,502.5 (100)	225.9 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A19. Ontario Standard Pollutants Emissions
- 1995

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)	PM10 (%)	PM2.5 (%)
AREA SOURCES [1]							
Total Vehicles	16.0 (2.7)	221.2 (42.4)	167.1 (23.9)	1,644.9 (66.0)	14.5 (6.4)	14.3 (11.5)	11.7 (13.1)
Off-Highway Engines	7.6 (1.3)	85.0 (16.3)	45.7 (6.5)	419.9 (16.8)	5.5 (2.5)	5.3 (4.2)	4.8 (5.3)
Railroad	2.4 (0.4)	30.2 (5.8)	1.4 (0.2)	5.8 (0.2)	0.7 (0.3)	0.7 (0.6)	0.7 (0.8)
Aircraft	0.4 (0.1)	5.8 (1.1)	2.2 (0.3)	11.9 (0.5)	0.9 (0.4)	0.5 (0.4)	0.3 (0.4)
Marine	18.6 (3.1)	8.1 (1.6)	14.4 (2.1)	44.9 (1.8)	1.9 (0.9)	1.7 (1.4)	1.5 (1.7)
Residential [2]	4.7 (0.8)	17.5 (3.4)	82.3 (11.8)	152.4 (6.1)	22.3 (9.9)	21.7 (17.4)	21.7 (24.3)
Commercial [2]	2.8 (0.5)	9.1 (1.7)	0.4 (0.1)	1.8 (0.1)	1.1 (0.5)	1.0 (0.8)	0.9 (1.1)
Industrial [2]	5.5 (0.9)	11.5 (2.2)	0.6 (0.1)	10.3 (0.4)	7.8 (3.5)	7.0 (5.6)	5.9 (6.6)
Incineration	0.3 (0.0)	0.4 (0.1)	1.8 (0.3)	17.9 (0.7)	0.8 (0.3)	0.4 (0.3)	0.3 (0.3)
Fires	0.0 (0.0)	0.5 (0.1)	3.3 (0.5)	42.7 (1.7)	6.5 (2.9)	5.7 (4.6)	4.4 (5.0)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	3.0 (0.4)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	63.7 (9.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	150.4 (21.5)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	36.2 (5.2)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.6 (1.1)	1.1 (0.0)	74.8 (33.1)	18.6 (14.9)	5.6 (6.2)
SUBTOTAL [5]	58.3 (10)	389.3 (75)	580.2 (83)	2,353.7 (94)	136.8 (61)	77.0 (62)	57.8 (65)
POINT SOURCES							
Electric Utilities	74.6 (12.4)	47.5 (9.1)	0.1 (0.0)	1.8 (0.1)	5.0 (2.2)	4.0 (3.2)	3.4 (3.8)
Non-Iron Smelters	287.4 (47.9)	1.5 (0.3)	0.0 (0.0)	0.0 (0.0)	10.1 (4.5)	7.5 (6.0)	3.1 (3.5)
Other Primary Metals	31.1 (5.2)	14.5 (2.8)	22.2 (3.2)	21.6 (0.9)	16.0 (7.1)	8.3 (6.6)	7.1 (7.9)
Petroleum Refineries	63.5 (10.6)	15.6 (3.0)	13.9 (2.0)	12.9 (0.5)	3.0 (1.3)	2.2 (1.8)	1.3 (1.5)
Pulp & Paper	8.2 (1.4)	9.2 (1.8)	12.5 (1.8)	37.7 (1.5)	22.2 (9.8)	9.4 (7.6)	7.5 (8.4)
Chemicals	8.8 (1.5)	8.0 (1.5)	17.2 (2.5)	20.0 (0.8)	1.9 (0.8)	1.6 (1.3)	1.3 (1.4)
Other Manufacturing	23.1 (3.8)	30.4 (5.8)	48.8 (7.0)	22.4 (0.9)	14.9 (6.6)	9.4 (7.5)	5.9 (6.6)
Mining	44.5 (7.4)	2.4 (0.5)	0.8 (0.1)	22.1 (0.9)	15.1 (6.7)	4.9 (4.0)	1.8 (2.0)
Miscellaneous [4]	1.0 (0.2)	2.7 (0.5)	4.5 (0.6)	1.9 (0.1)	1.3 (0.6)	0.5 (0.4)	0.2 (0.3)
SUBTOTAL [5]	542.2 (90)	131.8 (25)	119.9 (17)	140.4 (6)	89.3 (39)	47.9 (38)	31.5 (35)
ONTARIO TOTAL [5]	600.5 (100)	521.2 (100)	700.0 (100)	2,494.0 (100)	226.1 (100)	124.9 (100)	89.4 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

**Table A20. Ontario Standard Pollutants Emissions
- 1996**

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)	PM10 (%)	PM2.5 (%)
AREA SOURCES [1]							
Total Vehicles	16.4 (2.6)	213.1 (40.2)	161.7 (22.8)	1,609.0 (65.3)	12.2 (5.5)	12.2 (10.0)	10.4 (12.1)
Off-Highway Engines	8.2 (1.3)	89.2 (16.8)	45.3 (6.4)	412.5 (16.7)	5.8 (2.6)	5.5 (4.5)	5.0 (5.8)
Railroad	2.6 (0.4)	32.5 (6.1)	1.5 (0.2)	6.2 (0.3)	0.8 (0.4)	0.8 (0.6)	0.7 (0.8)
Aircraft	0.4 (0.1)	6.3 (1.2)	2.3 (0.3)	11.8 (0.5)	0.9 (0.4)	0.5 (0.4)	0.4 (0.4)
Marine	16.9 (2.7)	7.4 (1.4)	14.4 (2.0)	45.2 (1.8)	1.8 (0.8)	1.6 (1.3)	1.4 (1.6)
Residential [2]	6.2 (1.0)	19.5 (3.7)	88.4 (12.5)	161.8 (6.6)	23.1 (10.3)	23.0 (18.9)	22.5 (26.1)
Commercial [2]	3.1 (0.5)	9.1 (1.7)	0.4 (0.1)	6.4 (0.3)	0.8 (0.3)	0.7 (0.6)	0.6 (0.7)
Industrial [2]	17.7 (2.8)	13.6 (2.6)	0.6 (0.1)	10.4 (0.4)	8.5 (3.8)	7.4 (6.1)	6.1 (7.0)
Incineration	0.3 (0.0)	0.4 (0.1)	1.8 (0.3)	18.4 (0.7)	0.8 (0.4)	0.4 (0.4)	0.3 (0.4)
Fires	0.0 (0.0)	0.4 (0.1)	3.0 (0.4)	40.1 (1.6)	6.0 (2.7)	5.3 (4.4)	4.1 (4.8)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	3.1 (0.4)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	64.4 (9.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	152.7 (21.6)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	36.6 (5.2)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	7.7 (1.1)	1.1 (0.0)	74.9 (33.4)	18.6 (15.3)	5.6 (6.5)
SUBTOTAL [5]	71.8 (11)	391.7 (74)	584.1 (83)	2,323.0 (94)	135.6 (61)	76.0 (63)	57.0 (66)
POINT SOURCES							
Electric Utilities	87.6 (13.8)	56.7 (10.7)	0.1 (0.0)	1.8 (0.1)	2.1 (0.9)	1.7 (1.4)	1.5 (1.8)
Non-Iron Smelters	296.7 (46.8)	1.6 (0.3)	0.0 (0.0)	0.0 (0.0)	9.9 (4.4)	8.0 (6.6)	3.7 (4.3)
Other Primary Metals	29.4 (4.6)	15.1 (2.9)	23.8 (3.4)	21.9 (0.9)	18.6 (8.3)	8.1 (6.6)	6.4 (7.4)
Petroleum Refineries	70.2 (11.1)	14.7 (2.8)	14.4 (2.0)	13.5 (0.5)	3.1 (1.4)	2.3 (1.9)	1.4 (1.6)
Pulp & Paper	11.2 (1.8)	9.4 (1.8)	12.8 (1.8)	38.7 (1.6)	21.6 (9.6)	8.9 (7.3)	7.0 (8.1)
Chemicals	7.0 (1.1)	7.9 (1.5)	17.6 (2.5)	19.7 (0.8)	1.9 (0.9)	1.3 (1.1)	1.1 (1.3)
Other Manufacturing	18.6 (2.9)	27.4 (5.2)	49.6 (7.0)	22.5 (0.9)	14.9 (6.6)	9.4 (7.7)	5.8 (6.8)
Mining	40.5 (6.4)	2.5 (0.5)	0.8 (0.1)	22.9 (0.9)	15.1 (6.8)	5.3 (4.3)	1.9 (2.2)
Miscellaneous [4]	1.0 (0.2)	2.6 (0.5)	4.7 (0.7)	1.8 (0.1)	1.2 (0.6)	0.5 (0.4)	0.2 (0.3)
SUBTOTAL [5]	562.3 (89)	137.9 (26)	123.8 (17)	142.9 (6)	88.4 (39)	45.5 (37)	29.0 (34)
ONTARIO TOTAL [5]	634.1 (100)	529.5 (100)	707.9 (100)	2,465.9 (100)	224.0 (100)	121.5 (100)	86.0 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A21. Ontario Standard Pollutants Emissions
- 1997

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)	PM10 (%)	PM2.5 (%)
AREA SOURCES [1]							
Total Vehicles	11.4 (1.8)	206.2 (38.6)	149.5 (21.3)	1,501.8 (62.5)	11.7 (5.3)	11.7 (9.4)	9.9 (11.1)
Off-Highway Engines	9.3 (1.5)	87.4 (16.3)	47.4 (6.8)	453.3 (18.9)	5.8 (2.6)	5.5 (4.4)	5.0 (5.6)
Railroad	3.1 (0.5)	32.7 (6.1)	1.5 (0.2)	6.3 (0.3)	0.8 (0.4)	0.8 (0.6)	0.7 (0.8)
Aircraft	0.5 (0.1)	6.7 (1.3)	2.5 (0.4)	12.5 (0.5)	0.9 (0.4)	0.5 (0.4)	0.4 (0.4)
Marine	20.6 (3.3)	8.5 (1.6)	14.8 (2.1)	46.2 (1.9)	2.0 (0.9)	1.8 (1.4)	1.6 (1.8)
Residential [2]	5.0 (0.8)	18.6 (3.5)	93.6 (13.3)	172.9 (7.2)	25.2 (11.3)	24.6 (19.7)	24.5 (27.5)
Commercial [2]	4.0 (0.6)	9.2 (1.7)	0.4 (0.1)	1.8 (0.1)	1.1 (0.5)	1.0 (0.8)	1.0 (1.1)
Industrial [2]	7.5 (1.2)	11.7 (2.2)	0.5 (0.1)	8.9 (0.4)	6.9 (3.1)	6.2 (4.9)	5.2 (5.8)
Incineration	0.3 (0.0)	0.4 (0.1)	1.9 (0.3)	19.0 (0.8)	0.8 (0.4)	0.5 (0.4)	0.3 (0.4)
Fires	0.0 (0.0)	0.4 (0.1)	2.8 (0.4)	37.7 (1.6)	5.6 (2.5)	5.0 (4.0)	3.8 (4.3)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	3.2 (0.5)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	64.8 (9.2)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	155.1 (22.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	36.6 (5.2)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	6.8 (1.0)	1.1 (0.0)	66.1 (29.6)	16.6 (13.3)	5.0 (5.7)
SUBTOTAL [5]	61.5 (10)	381.8 (71)	581.4 (83)	2,261.6 (94)	127.0 (57)	74.0 (59)	57.4 (64)
POINT SOURCES							
Electric Utilities	126.1 (20.3)	68.2 (12.8)	0.0 (0.0)	2.6 (0.1)	2.8 (1.3)	2.7 (2.1)	2.7 (3.0)
Non-Iron Smelters	259.5 (41.8)	1.7 (0.3)	0.0 (0.0)	0.1 (0.0)	10.5 (4.7)	8.5 (6.8)	3.9 (4.4)
Other Primary Metals	31.0 (5.0)	15.9 (3.0)	24.1 (3.4)	21.9 (0.9)	19.5 (8.7)	8.5 (6.8)	6.7 (7.5)
Petroleum Refineries	64.2 (10.3)	13.6 (2.6)	12.4 (1.8)	14.1 (0.6)	3.2 (1.4)	2.4 (1.9)	1.4 (1.6)
Pulp & Paper	9.6 (1.5)	9.3 (1.7)	10.6 (1.5)	34.4 (1.4)	23.9 (10.7)	10.8 (8.7)	7.7 (8.7)
Chemicals	7.8 (1.3)	7.2 (1.4)	17.0 (2.4)	18.6 (0.8)	2.0 (0.9)	0.9 (0.7)	0.7 (0.8)
Other Manufacturing	21.0 (3.4)	31.0 (5.8)	49.8 (7.1)	23.0 (1.0)	17.6 (7.9)	10.7 (8.6)	6.4 (7.2)
Mining	38.7 (6.2)	3.0 (0.6)	0.9 (0.1)	24.6 (1.0)	15.6 (7.0)	5.5 (4.4)	2.0 (2.2)
Miscellaneous [4]	1.0 (0.2)	2.8 (0.5)	5.6 (0.8)	1.0 (0.0)	1.3 (0.6)	0.5 (0.4)	0.2 (0.3)
SUBTOTAL [5]	558.9 (90)	152.9 (29)	120.5 (17)	140.2 (6)	96.4 (43)	50.5 (41)	31.8 (36)
ONTARIO TOTAL [5]	620.4 (100)	534.7 (100)	701.9 (100)	2,401.8 (100)	223.5 (100)	124.5 (100)	89.2 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A22. Ontario Standard Pollutants Emissions
- 1998

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)	PM10 (%)	PM2.5 (%)
AREA SOURCES [1]							
Total Vehicles	11.3 (1.7)	200.8 (36.7)	146.1 (20.9)	1,483.4 (61.7)	11.3 (5.3)	11.2 (9.1)	9.5 (11.0)
Off-Highway Engines	4.5 (0.7)	98.1 (18.0)	48.9 (7.0)	485.9 (20.2)	6.2 (2.9)	5.9 (4.8)	5.3 (6.1)
Railroad	1.0 (0.2)	28.3 (5.2)	1.3 (0.2)	5.4 (0.2)	0.7 (0.3)	0.7 (0.6)	0.6 (0.7)
Aircraft	0.5 (0.1)	7.0 (1.3)	2.6 (0.4)	13.6 (0.6)	1.0 (0.5)	0.6 (0.5)	0.4 (0.5)
Marine	20.7 (3.1)	8.8 (1.6)	15.1 (2.1)	46.8 (1.9)	2.1 (1.0)	1.9 (1.5)	1.6 (1.9)
Residential [2]	4.6 (0.7)	15.6 (2.8)	90.8 (13.0)	167.1 (6.9)	24.2 (11.2)	23.6 (19.1)	23.6 (27.1)
Commercial [2]	3.7 (0.6)	8.3 (1.5)	0.4 (0.1)	1.7 (0.1)	1.0 (0.5)	0.9 (0.8)	0.9 (1.0)
Industrial [2]	11.9 (1.8)	11.1 (2.0)	0.4 (0.1)	8.4 (0.3)	7.1 (3.3)	6.2 (5.1)	5.1 (5.9)
Incineration	0.3 (0.0)	0.4 (0.1)	1.9 (0.3)	19.5 (0.8)	0.8 (0.4)	0.5 (0.4)	0.3 (0.4)
Fires	0.0 (0.0)	0.4 (0.1)	2.8 (0.4)	39.1 (1.6)	5.7 (2.7)	5.0 (4.1)	3.8 (4.4)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	3.4 (0.5)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	65.9 (9.4)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	157.5 (22.5)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	36.8 (5.3)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	6.7 (1.0)	1.1 (0.0)	65.3 (30.4)	16.4 (13.3)	5.0 (5.8)
SUBTOTAL [5]	58.5 (9)	378.8 (69)	580.5 (83)	2,272.0 (94)	125.4 (58)	72.9 (59)	56.3 (65)
POINT SOURCES							
Electric Utilities	145.7 (22.1)	87.9 (16.1)	0.0 (0.0)	3.6 (0.2)	3.4 (1.6)	3.2 (2.6)	3.2 (3.6)
Non-Iron Smelters	297.2 (45.1)	1.7 (0.3)	0.0 (0.0)	0.1 (0.0)	10.5 (4.9)	8.5 (6.9)	3.9 (4.5)
Other Primary Metals	22.0 (3.3)	13.9 (2.5)	23.5 (3.4)	22.2 (0.9)	15.5 (7.2)	8.3 (6.8)	5.3 (6.1)
Petroleum Refineries	64.7 (9.8)	11.0 (2.0)	9.9 (1.4)	14.1 (0.6)	3.2 (1.5)	2.4 (1.9)	1.4 (1.7)
Pulp & Paper	10.7 (1.6)	8.5 (1.6)	10.6 (1.5)	33.2 (1.4)	20.8 (9.7)	9.6 (7.8)	7.0 (8.1)
Chemicals	7.5 (1.1)	6.4 (1.2)	15.9 (2.3)	18.7 (0.8)	2.0 (0.9)	0.9 (0.7)	0.7 (0.8)
Other Manufacturing	22.4 (3.4)	32.4 (5.9)	53.5 (7.6)	23.9 (1.0)	18.2 (8.5)	11.8 (9.6)	7.0 (8.1)
Mining	28.8 (4.4)	3.3 (0.6)	0.6 (0.1)	16.9 (0.7)	14.5 (6.8)	5.3 (4.3)	1.9 (2.2)
Miscellaneous [4]	1.3 (0.2)	2.5 (0.5)	5.7 (0.8)	1.2 (0.1)	1.3 (0.6)	0.5 (0.4)	0.2 (0.3)
SUBTOTAL [5]	600.1 (91)	167.7 (31)	119.8 (17)	134.0 (6)	89.4 (42)	50.5 (41)	30.6 (35)
ONTARIO TOTAL [5]	658.6 (100)	546.5 (100)	700.3 (100)	2,406.0 (100)	214.8 (100)	123.4 (100)	86.9 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A23. Ontario Standard Pollutants Emissions
- 1999

(Kilo-tonnes)

SECTOR	SO2 (%)	NOX (%)	VOC (%)	CO (%)	PM (%)	PM10 (%)	PM2.5 (%)
AREA SOURCES [1]							
Total Vehicles	10.6 (1.8)	193.6 (35.2)	139.1 (20.1)	1,439.1 (60.8)	10.9 (5.3)	10.8 (8.8)	9.1 (10.7)
Off-Highway Engines	4.8 (0.8)	108.7 (19.8)	51.1 (7.4)	514.8 (21.8)	6.6 (3.2)	6.4 (5.2)	5.8 (6.8)
Railroad	1.1 (0.2)	30.4 (5.5)	1.4 (0.2)	5.8 (0.2)	0.7 (0.4)	0.7 (0.6)	0.7 (0.8)
Aircraft	0.5 (0.1)	7.0 (1.3)	2.6 (0.4)	14.1 (0.6)	1.0 (0.5)	0.6 (0.5)	0.4 (0.5)
Marine	14.2 (2.4)	7.6 (1.4)	15.1 (2.2)	47.1 (2.0)	1.7 (0.8)	1.5 (1.2)	1.3 (1.6)
Residential [2]	4.2 (0.7)	16.5 (3.0)	83.5 (12.1)	154.2 (6.5)	22.4 (11.0)	21.9 (17.8)	21.9 (25.8)
Commercial [2]	1.8 (0.3)	9.1 (1.7)	0.4 (0.1)	1.9 (0.1)	1.0 (0.5)	1.0 (0.8)	1.0 (1.1)
Industrial [2]	7.6 (1.3)	10.0 (1.8)	0.4 (0.1)	6.8 (0.3)	5.9 (2.9)	5.3 (4.3)	4.4 (5.2)
Incineration	0.3 (0.0)	0.4 (0.1)	2.0 (0.3)	19.8 (0.8)	0.9 (0.4)	0.5 (0.4)	0.3 (0.4)
Fires	0.0 (0.0)	0.4 (0.1)	2.8 (0.4)	39.3 (1.7)	5.7 (2.8)	5.0 (4.1)	3.9 (4.5)
Dry Cleaning	0.0 (0.0)	0.0 (0.0)	3.4 (0.5)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Surface Coating	0.0 (0.0)	0.0 (0.0)	67.0 (9.7)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
General Solvent Use	0.0 (0.0)	0.0 (0.0)	159.8 (23.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Fuel Marketing	0.0 (0.0)	0.0 (0.0)	37.1 (5.4)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Misc. Processes [3]	0.0 (0.0)	0.0 (0.0)	5.8 (0.8)	1.1 (0.0)	57.5 (28.1)	14.6 (11.9)	4.5 (5.3)
SUBTOTAL [5]	44.9 (8)	383.8 (70)	571.5 (83)	2,243.9 (95)	114.4 (56)	68.2 (56)	53.2 (63)
POINT SOURCES							
Electric Utilities	145.9 (25.2)	84.3 (15.3)	0.1 (0.0)	5.0 (0.2)	10.3 (5.0)	8.7 (7.1)	5.3 (6.3)
Non-Iron Smelters	264.3 (45.6)	1.7 (0.3)	0.0 (0.0)	0.1 (0.0)	10.5 (5.1)	8.7 (7.1)	4.1 (4.9)
Other Primary Metals	22.5 (3.9)	14.2 (2.6)	23.7 (3.4)	22.9 (1.0)	16.8 (8.2)	8.8 (7.2)	5.5 (6.5)
Petroleum Refineries	58.5 (10.1)	10.9 (2.0)	9.6 (1.4)	14.1 (0.6)	3.2 (1.5)	2.4 (1.9)	1.4 (1.7)
Pulp & Paper	9.6 (1.7)	8.7 (1.6)	11.1 (1.6)	33.9 (1.4)	16.3 (8.0)	8.0 (6.5)	5.8 (6.9)
Chemicals	8.5 (1.5)	7.0 (1.3)	15.0 (2.2)	18.9 (0.8)	2.0 (1.0)	0.9 (0.7)	0.7 (0.8)
Other Manufacturing	23.4 (4.0)	32.7 (6.0)	54.7 (7.9)	23.6 (1.0)	17.8 (8.7)	11.6 (9.4)	6.8 (8.0)
Mining	0.8 (0.1)	3.2 (0.6)	0.1 (0.0)	1.5 (0.1)	12.2 (6.0)	5.0 (4.0)	1.7 (2.0)
Miscellaneous [4]	1.5 (0.3)	2.8 (0.5)	5.6 (0.8)	2.0 (0.1)	1.3 (0.7)	0.6 (0.5)	0.3 (0.3)
SUBTOTAL [5]	535.0 (92)	165.6 (30)	120.0 (17)	121.9 (5)	90.4 (44)	54.6 (44)	31.6 (37)
ONTARIO TOTAL [5]	579.9 (100)	549.4 (100)	691.4 (100)	2,365.8 (100)	204.8 (100)	122.8 (100)	84.8 (100)

Notes :

- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) are not included.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Table A24. Ontario 1985 Top 10 SO2 Point Sources

Rank	Company Name	City	SO2 Emission	
			(Kilo-tonnes)	% of Ontario
1	Inco Ltd. (Copper Cliff)	Sudbury	695	48.1%
2	Nanticoke TGS	Nanticoke	169	11.7%
3	Lambton TGS	Courtright	118	8.2%
4	Algoma - Ore Division	Wawa	112	7.7%
5	Falconbridge Limited	Falconbridge	74	5.1%
6	Lakeview TGS	Mississauga	44	3.0%
7	Esso Petroleum	Sarnia	22	1.5%
8	Dofasco Inc.	Hamilton	20	1.4%
9	Stelco Inc. (Hilton Works)	Hamilton	17	1.2%
10	Shell Canada	Corunna	13	0.9%
TOTAL OF 10 MAJOR SOURCES:			1,284	88.9%
Ontario Provincial Total = 1,445 kilo-tonnes.				

Figure A9. Ontario 1985 Top 10 SO2 Point Sources

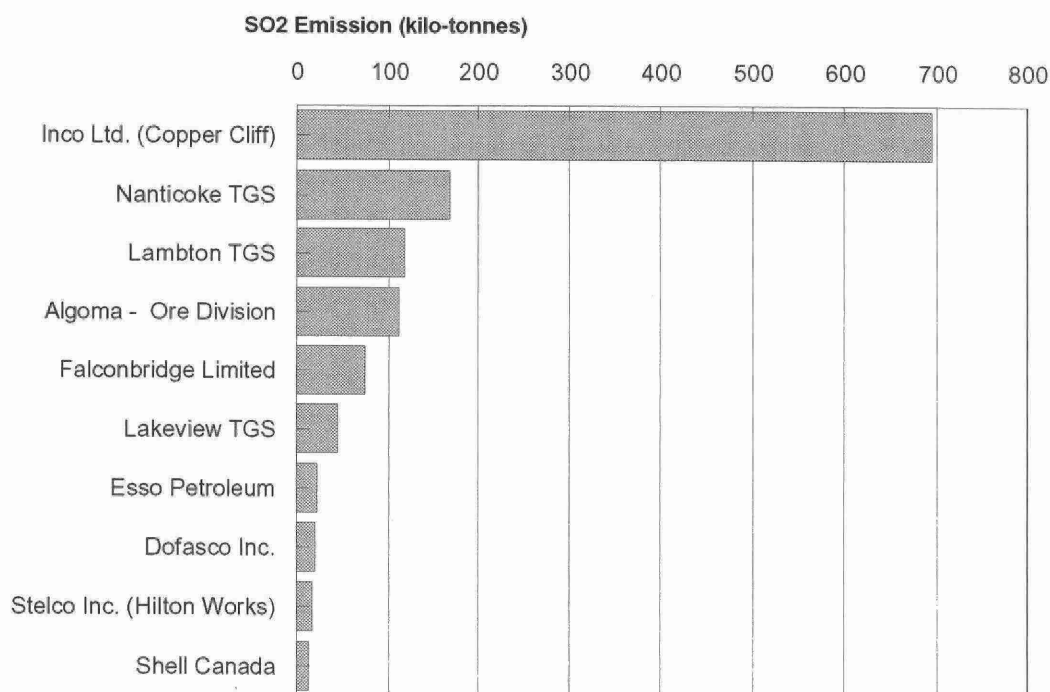


Table A25. Ontario 1990 Top 10 SO2 Point Sources

Rank	Company Name	City	SO2 Emission	
			(Kilo-tonnes)	% of Ontario
1	Inco Ltd. (Copper Cliff)	Sudbury	617	53.4%
2	Nanticoke TGS	Nanticoke	101	8.7%
3	Falconbridge Limited	Falconbridge	70	6.0%
4	Lambton TGS	Courtright	46	4.0%
5	Algoma - Ore Division	Wawa	42	3.6%
6	Lakeview TGS	Mississauga	36	3.1%
7	Esso Petroluem	Sarnia	23	2.0%
8	Shell Canada Ltd.	Corunna	13	1.1%
9	Dofasco Inc.	Hamilton	10	0.9%
10	Algoma Steel Inc.	Sault Ste. Marie	9	0.8%
TOTAL OF 10 MAJOR SOURCES:			967	83.7%
Ontario Provincial Total = 1,155 kilo-tonnes.				

Figure A10. Ontario 1990 Top 10 SO2 Point Sources

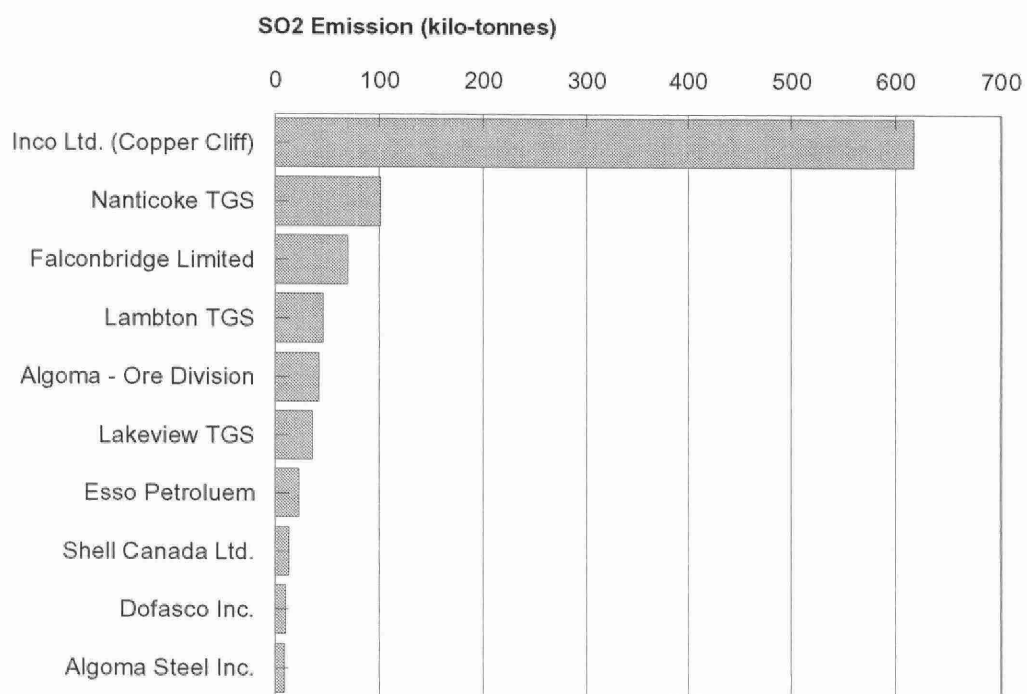


Table A26. Ontario 1995 Top 10 SO2 Point Sources

Rank	Company Name	City	SO2 Emission	
			(Kilo-tonnes)	% of Ontario
1	Inco Ltd. (Copper Cliff)	Sudbury	236	39.3%
2	Falconbridge Limited	Falconbridge	45	7.5%
3	Algoma - Ore Division	Wawa	44	7.3%
4	Nanticoke TGS	Nanticoke	37	6.2%
5	Imperial Oil-Sarnia Refiner	Sarnia	24	4.0%
6	Shell Canada Ltd.	Corunna	18	3.0%
7	Lambton TGS	Courtright	16	2.7%
8	Algoma Steel Inc.	Sault Ste. Marie	12	2.0%
9	Lakeview TGS	Mississauga	12	1.9%
10	Dofasco Inc.	Hamilton	8	1.4%
TOTAL OF 10 MAJOR SOURCES:			452	75.3%
Ontario Provincial Total = 601 kilo-tonnes.				

Figure A11. Ontario 1995 Top 10 SO2 Point Sources

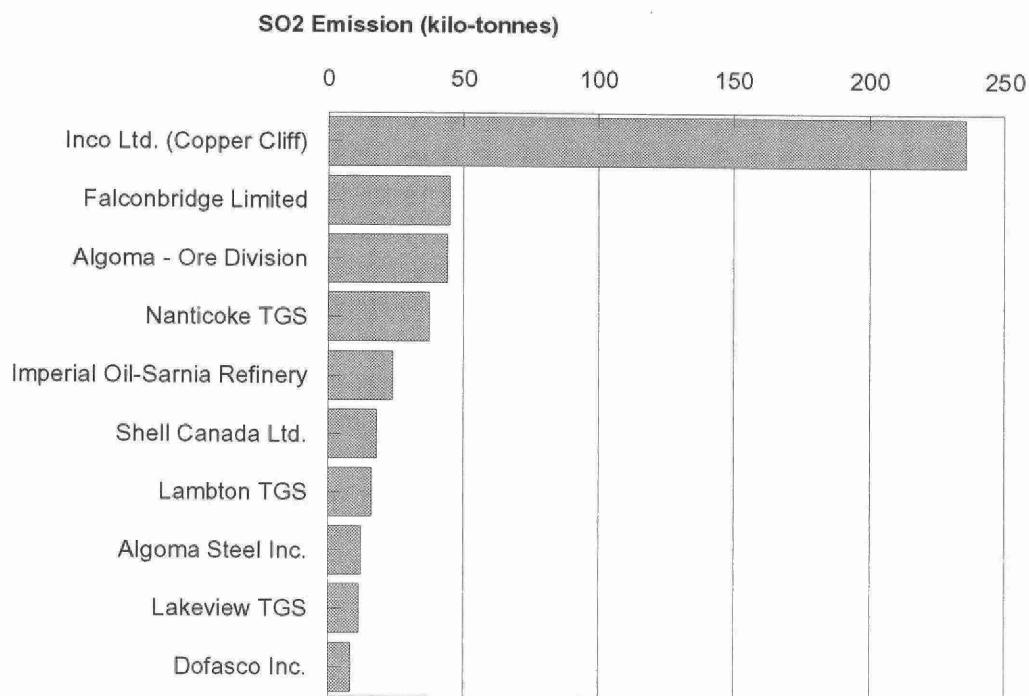


Table A27. Ontario 1985 Top 10 NOx Point Sources

Rank	Company Name	City	NOx Emission	
			(Kilo-tonnes)	% of Ontario
1	NanticokeTGS	Nanticoke	60	9.1%
2	Inco Ltd. (Copper Cliff)	Sudbury	49	7.4%
3	Lambton TGS	Courtright	18	2.8%
4	Lakeview TGS	Mississauga	14	2.1%
5	Stelco Inc. (Hilton Works)	Hamilton	8	1.1%
6	Dofasco Inc.	Hamilton	7	1.1%
7	Esso Chemicals	Sarnia	4	0.6%
8	Esso Petroleum	Sarnia	4	0.6%
9	Stelco Inc. (Lake Erie)	Nanticoke	3	0.5%
10	St. Lawrence Cement	Mississauga	3	0.5%
TOTAL OF 10 MAJOR SOURCES:			170	25.9%
Ontario Provincial Total = 656 kilo-tonnes.				

Figure A12. Ontario 1985 Top 10 NOx Point Sources

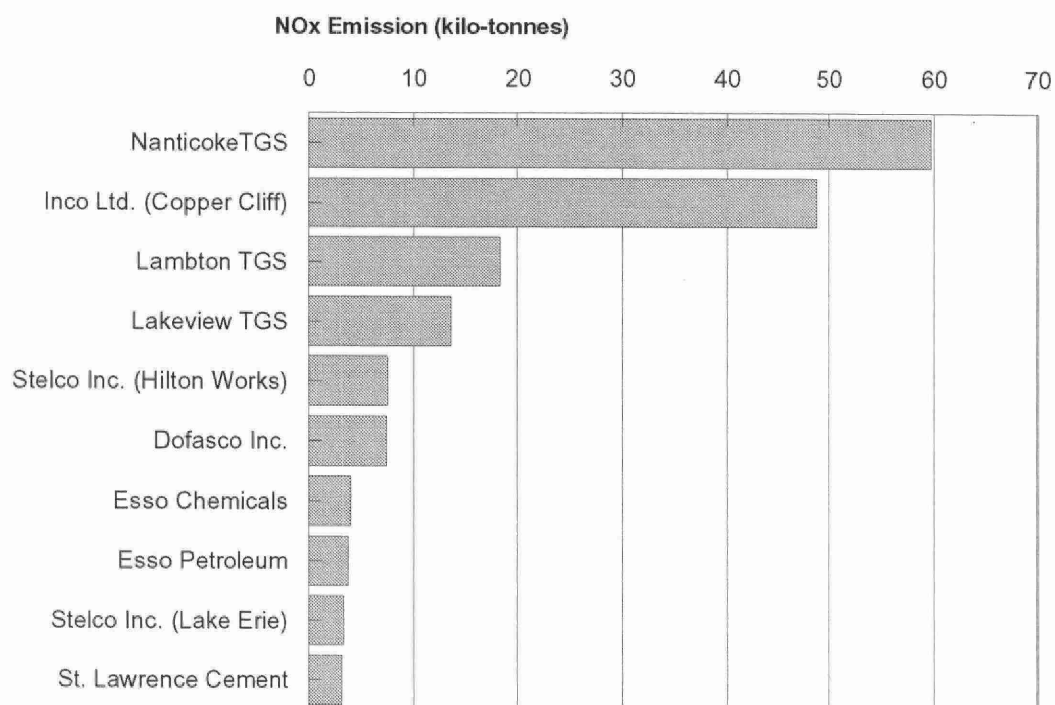


Table A28. Ontario 1990 Top 10 NOx Point Sources

Rank	Company Name	City	NOx Emission	
			(Kilo-tonnes)	% of Ontario
1	Inco Ltd. (Copper Cliff)	Sudbury	52	7.9%
2	Nanticoke TGS	Nanticoke	43	6.5%
3	Lakeview TGS	Mississauga	14	2.1%
4	Lambton TGS	Courtright	13	2.0%
5	Stelco Inc. (Hilton Works)	Hamilton	5	0.7%
6	Dofasco Inc.	Hamilton	4	0.7%
7	Lafarge Canada Inc.	Bath	4	0.7%
8	Esso Petroluem	Sarnia	4	0.6%
9	Lafarge Canada Inc.	Woodstook	4	0.6%
10	Algoma Steel	Sault Ste. Marie	4	0.6%
TOTAL OF 10 MAJOR SOURCES:			146	22.2%
Ontario Provincial Total = 659 thousand tonnes.				

1990 was the last year in which INCO's NOx emissions were high.
They have been much lower since 1991.

Figure A13. Ontario 1990 Top 10 NOx Point Sources

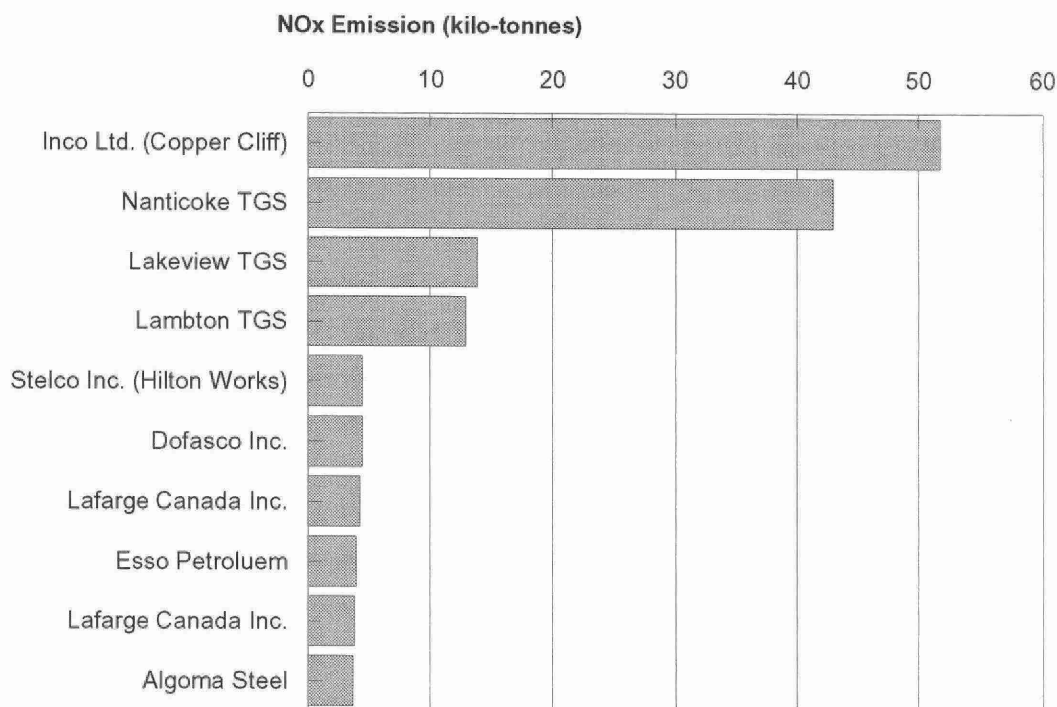
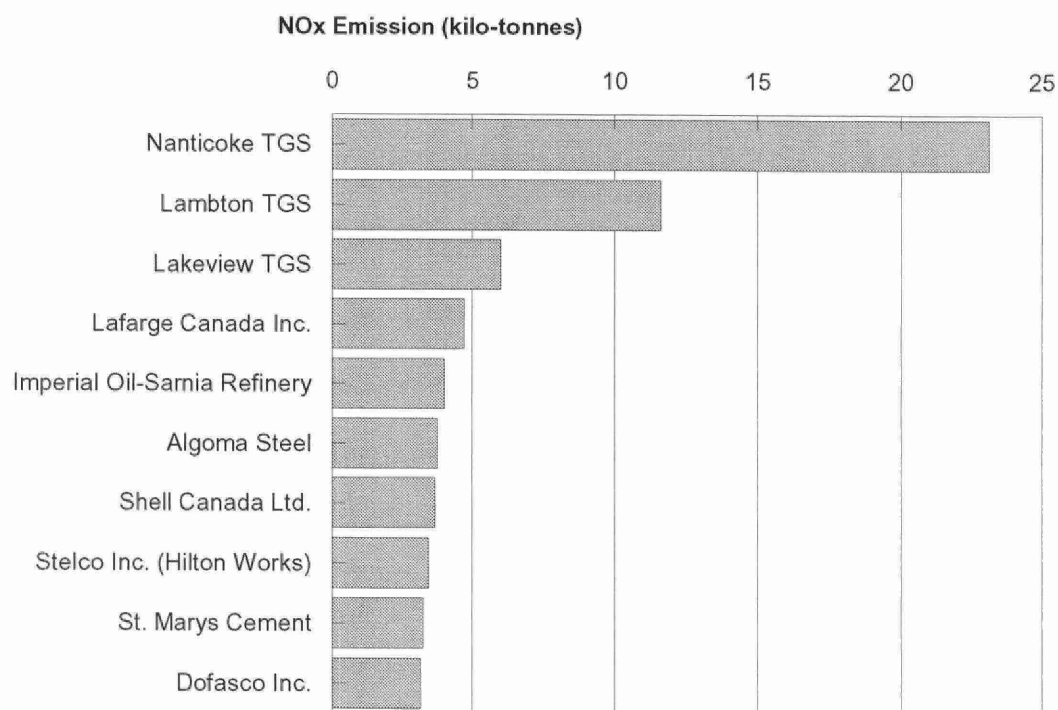


Table A29. Ontario 1995 Top 10 NOx Point Sources

Rank	Company Name	City	NOx Emission	
			(Kilo-tonnes)	% of Ontario
1	Nanticoke TGS	Nanticoke	23	4.4%
2	Lambton TGS	Courtright	12	2.2%
3	Lakeview TGS	Mississauga	6	1.1%
4	Lafarge Canada Inc.	Bath	5	0.9%
5	Imperial Oil-Sarnia Refiner	Sarnia	4	0.8%
6	Algoma Steel	Sault Ste. Marie	4	0.7%
7	Shell Canada Ltd.	Corunna	4	0.7%
8	Stelco Inc. (Hilton Works)	Hamilton	3	0.7%
9	St. Marys Cement	Bowmanville	3	0.6%
10	Dofasco Inc.	Hamilton	3	0.6%
TOTAL OF 10 MAJOR SOURCES:			67	12.8%
Ontario Provincial Total = 521 thousand tonnes.				

Figure A14. Ontario 1995 Top 10 NOx Point Sources

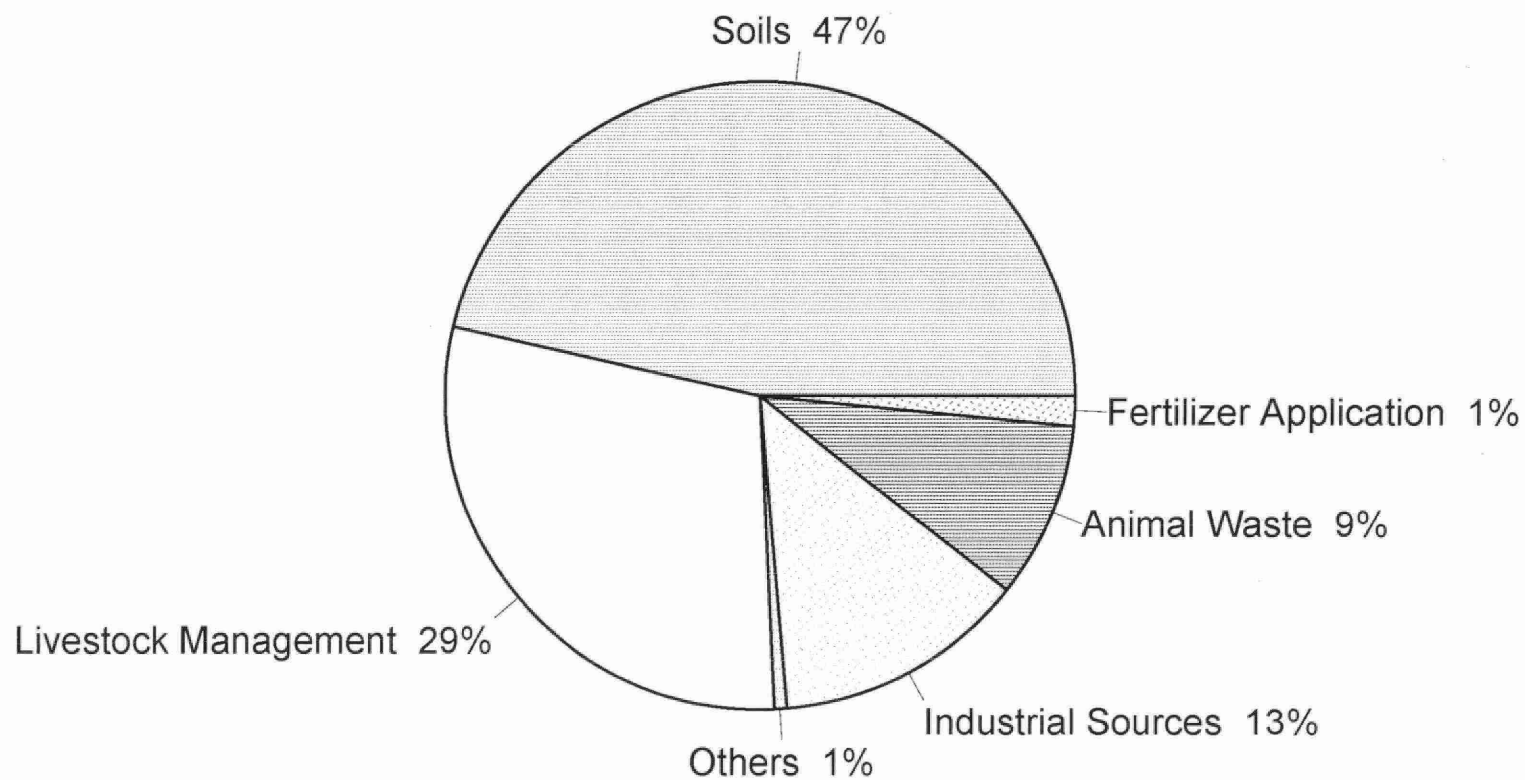


**Table A30. ONTARIO 1985 AMMONIA
EMISSIONS BY SOURCES**

SOURCE	AMMONIA EMISSIONS (Tonnes)	% OF ONTARIO
Natural Sources:		
Soils	52,954	46.5
Animal Waste	10,418	9.2
Forest Fires	3	0.0
Human Breath	50	0.0
Subtotal:	63,425	55.7
Anthropogenic Area Sources:		
Combustion	537	0.5
Incineration	37	0.0
Livestock Management	33,208	29.2
Fertilizer Application	1,705	1.5
Cigarette Smoking	2	0.0
Subtotal:	35,489	31.2
Anthropogenic Point Sources:		
Industrial	14,781	13.0
Incineration	78	0.1
Subtotal:	14,859	13.1
ONTARIO TOTAL:	113,773	100.0%

Source: Report by The Environmental Applications Group Limited,
"Alkaline Dust and Ammonia Emissions Inventory for Ontario",
March 1988.

Figure A15. Ontario 1985 Ammonia Emission Distribution by Sector



**Table A31. ONTARIO 1985 ALKALINE DUST
EMISSIONS BY SOURCES**

SOURCE	ALKALINE DUST EMISSIONS (Tonnes)	% OF ONTARIO
Natural Sources:		
Soils	60,789	3.9
Forest Fires	2	0.0
Subtotal:	60,791	3.9
Anthropogenic Area Sources:		
Combustion	1,214	0.1
Transportation	118	0.0
Open Sources*	1,466,491	93.2
Open Burning	<1	0.0
Subtotal:	1,467,823	93.3
Anthropogenic Point Sources:		
Industrial	43,090	2.7
Combustion	<1	0.0
Incineration	1,037	0.1
Subtotal:	44,127	2.8
TOTAL:	1,572,741	100.0

* "Open Sources" includes paved and unpaved roads.

Source: Report by The Environmental Applications Group Limited,
"Alkaline Dust and Ammonia Emissions Inventory for Ontario",
March 1988.

Figure A16. Ontario 1985 Alkaline Dust Emission Distribution by Sector

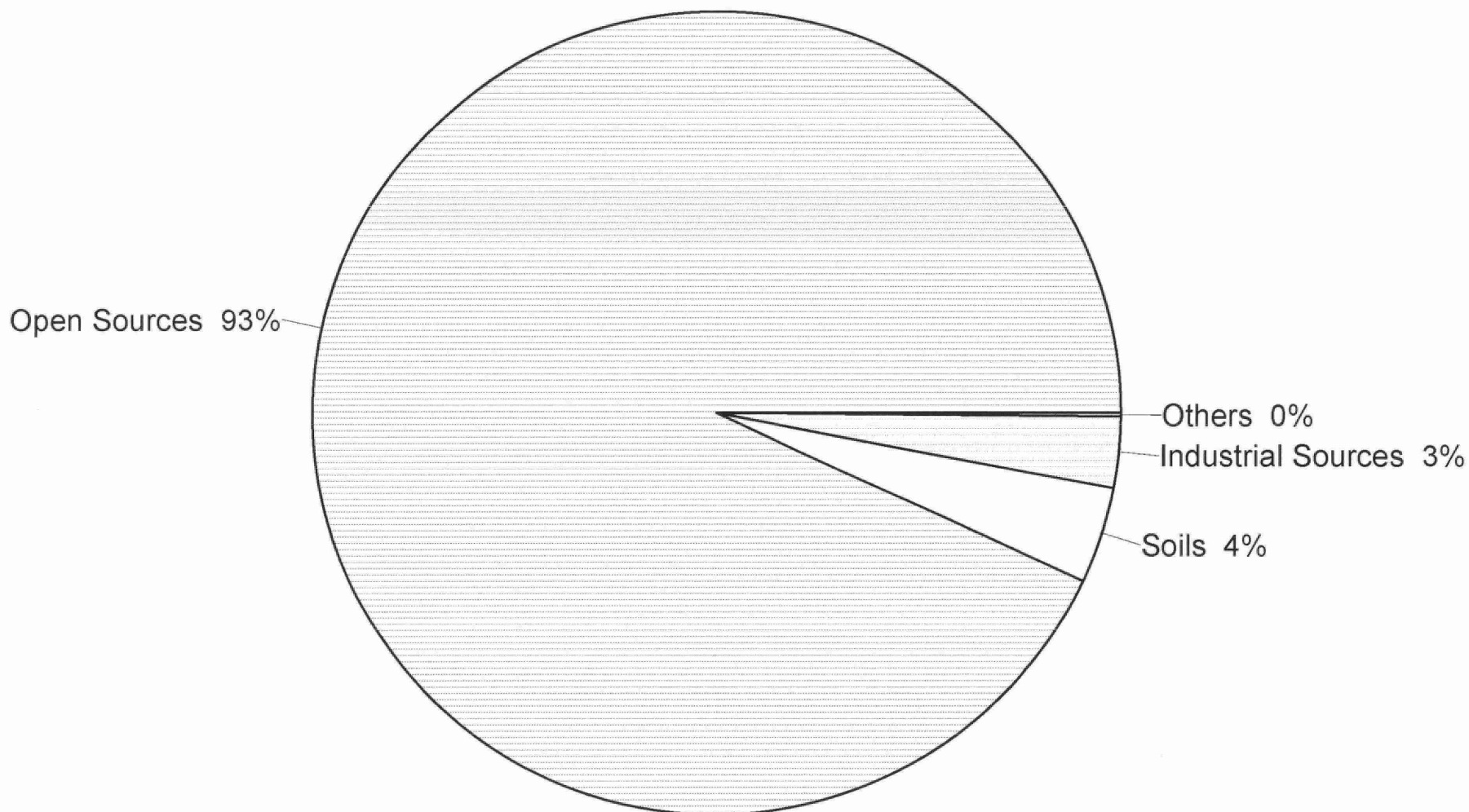


Table A32. Ontario Greenhouse Gases Emission Trend by Sector, 1990-1999
(Kilo-tonnes)

GHG Sources and Sinks Category	Year									
	1990 All Gases kt CO2 eq	1991 All Gases kt CO2 eq	1992 All Gases kt CO2 eq	1993 All Gases kt CO2 eq	1994 All Gases kt CO2 eq	1995 All Gases kt CO2 eq	1996 All Gases kt CO2 eq	1997 All Gases kt CO2 eq	1998 All Gases kt CO2 eq	1999 All Gases kt CO2 eq
ENERGY										
Fuel Combustion										
Fossil Fuel Industries	6,660	5,970	6,530	6,720	6,170	5,950	6,410	6,290	6,470	6,230
Electricity and Heat Generation	26,600	28,000	27,900	18,800	16,500	18,900	20,600	25,800	33,700	33,500
Mining	501	675	811	553	651	678	680	658	528	447
Manufacturing	22,800	21,500	21,100	20,700	21,900	21,100	21,500	21,900	21,100	20,100
Construction	573	527	559	337	421	373	444	492	451	477
Transport										
Light Duty Gasoline Vehicles	21,000	20,200	20,100	20,300	20,500	20,000	19,500	19,800	19,200	19,800
Light Duty Gasoline Trucks	7,710	7,960	8,490	9,130	9,740	10,100	10,800	11,600	11,700	12,600
Heavy Duty Gasoline Vehicles	888	922	981	1,050	1,120	1,160	1,200	1,220	1,270	1,360
Motorcycles	85	82	80	81	78	73	69	71	72	70
Off-Road Gasoline	1,180	1,160	941	768	800	997	1,060	1,070	2,330	2,170
Light Duty Diesel Vehicles	211	200	195	191	186	176	183	185	183	176
Light Duty Diesel Trucks	163	124	110	101	92	86	72	90	67	55
Heavy Duty Diesel Vehicles	7,350	6,610	6,920	7,580	8,270	9,390	9,770	10,700	10,800	11,700
Off-Road Diesel	2,410	2,230	2,160	2,240	2,330	2,200	2,230	2,400	3,010	3,450
Propane and Natural Gas Vehicles	544	662	1,110	1,010	585	798	834	711	630	622
Domestic Aviation	3,210	2,890	2,670	2,720	2,780	3,070	3,440	3,950	4,310	4,460
Domestic Marine	939	942	895	689	712	659	712	822	815	684
Railways	1,830	1,970	1,940	1,930	1,910	1,690	1,820	1,830	1,580	1,700
Vehicles Subtotal	47,500	45,900	46,600	47,800	49,100	50,400	51,700	54,400	56,000	58,800
Pipelines	2,270	2,400	3,250	3,410	3,460	4,040	4,360	4,240	4,060	4,090
Transport Subtotal	49,700	48,300	49,900	51,200	52,600	54,400	56,000	58,700	60,100	62,900
Residential	17,400	17,000	18,100	19,400	20,200	19,400	21,400	20,200	16,600	18,000
Commercial and Institutional	9,170	9,670	10,200	10,200	9,930	9,860	10,900	11,400	10,300	11,500
Other	781	894	1,110	997	940	1,150	1,130	1,050	936	959
Combustion Subtotal	134,000	133,000	136,000	129,000	129,000	132,000	139,000	147,000	150,000	154,000
Fugitive										
Solid Fuels (i.e. Coal Mining)	0	0	0	0	0	0	0	0	0	0
Oil and Gas	1,400	1,400	1,400	1,500	1,500	1,500	1,500	1,500	1,600	1,600
Fugitive Subtotal	1,400	1,400	1,400	1,500	1,500	1,500	1,500	1,500	1,600	1,600
ENERGY TOTAL	136,000	134,000	138,000	130,000	131,000	133,000	141,000	148,000	152,000	156,000
INDUSTRIAL PROCESSES										
Non-metallic Mineral Production	3,690	3,020	3,040	2,850	3,190	3,230	3,650	3,690	3,650	3,860
Adipic Acid and Nitric Acid Production	11,000	10,000	10,000	9,200	11,000	11,000	12,000	10,000	5,100	1,800
Ferrous Metal Production	7,590	8,900	9,070	8,740	8,070	8,420	8,280	8,090	8,300	8,490
Aluminum and Magnesium Production	500	500	500	500	500	540	530	660	660	840
Other & Undifferentiated Production	4,100	4,100	4,200	3,900	3,900	4,300	4,500	4,300	4,500	4,400
INDUSTRIAL PROCESSES TOTAL	27,000	27,000	27,000	25,000	27,000	27,000	28,000	27,000	22,000	19,000
SOLVENT & OTHER PRODUCT USE	160	160	160	160	160	170	170	170	170	170
AGRICULTURE										
Enteric Fermentation	3,300	3,300	3,200	3,000	3,100	3,100	3,000	3,200	3,100	3,000
Manure Management	2,200	2,200	2,200	2,100	2,200	2,300	2,300	2,300	2,300	2,300
Agricultural Soils**	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
AGRICULTURE TOTAL	12,000	11,000	11,000	11,000	12,000	12,000	11,000	11,000	12,000	12,000
LAND USE CHANGE & FORESTRY*	200	300	200	200	600	800	200	60	300	300
WASTE										
Solid Waste Disposal on Land	6,700	7,400	7,600	7,800	7,900	7,600	7,200	7,400	7,500	7,700
Wastewater Handling	380	390	390	400	400	410	410	420	420	430
Waste Incineration	80	81	82	79	79	81	82	83	84	85
WASTE TOTAL	7,200	7,800	8,000	8,200	8,400	8,100	7,700	7,900	8,000	8,200
ONTARIO TOTAL :	181,000	180,000	184,000	175,000	178,000	181,000	188,000	194,000	194,000	195,000

Source: (1) Environment Canada "1990 TO 1999 GREENHOUSE GAS EMISSION ESTIMATES FOR ONTARIO", August 2001.

http://www.ec.gc.ca/pdb/ghg/ghg_tables_e.cfm.

Notes: All gases represent the total emissions of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆).

The emissions of all greenhouse gases are expressed as CO₂ equivalent. These CO₂ eq emissions of individual greenhouse gas are obtained by multiplying the actual emission with its respective global warming potential. The global warming potential values are 1 for CO₂; 21 for CH₄; 310 for N₂O; 140-11,700 for HFCs; 6,500-9,200 for PFCs; and 23,900 for SF₆.

Ammonia production emissions are included under undifferentiated production at the provincial level.

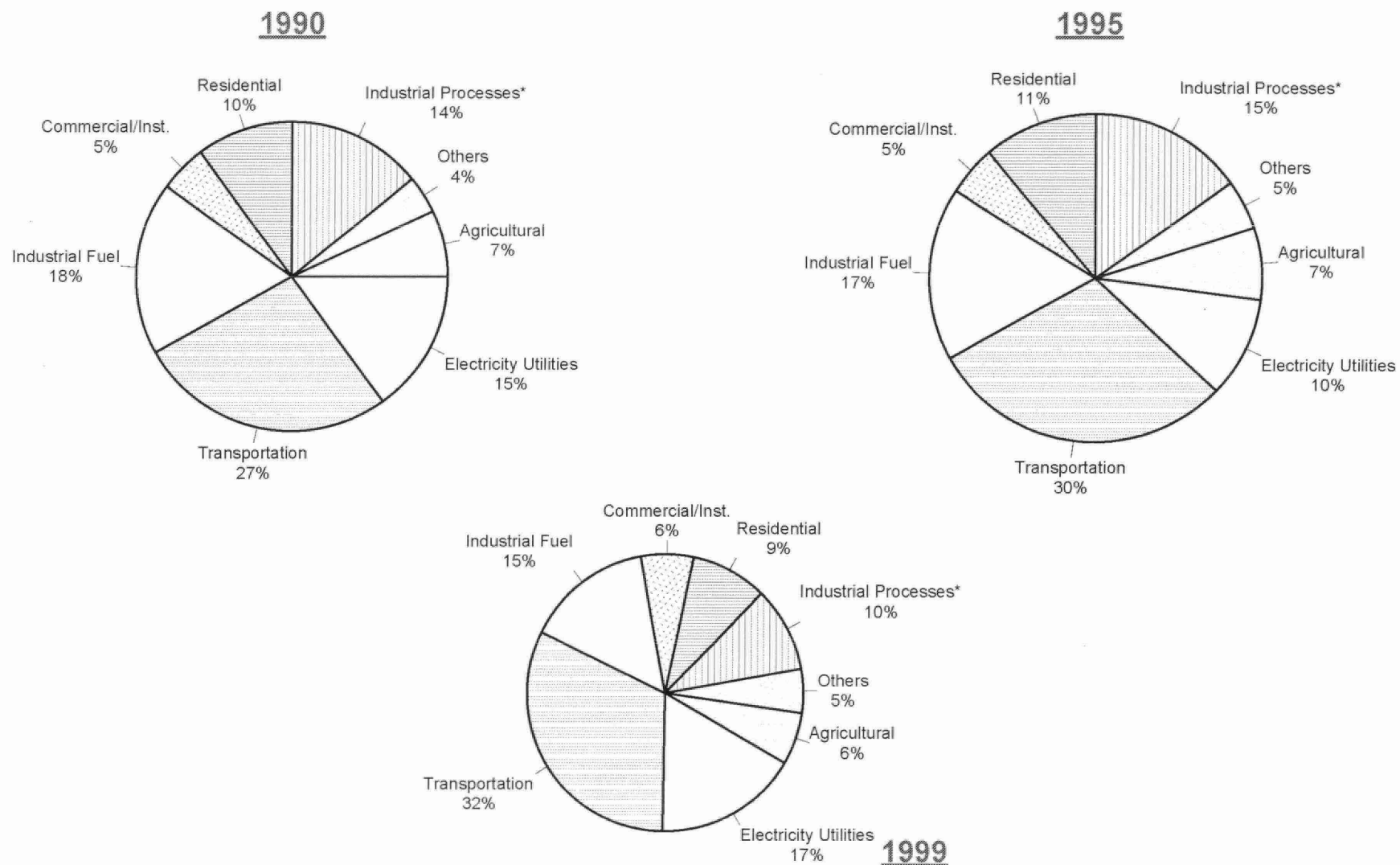
Emissions associated with the use of HFCs, PFCs, limestone and soda ash are not included in provincial totals.

* Methane and Nitrous Oxide emissions from prescribed and anthropogenic fires outside the Wood Production Forest. Fires located in National Parks are not included in the provincial total.

** Only one significant figure is shown due to high uncertainty.

Due to rounding, individual values may not add up to totals (zero values may represent estimated quantities too small to display).

Figure A17. Ontario Greenhouse Gases Emission Estimates - 1990, 1995 and 1999



*Industrial processes do not include the emissions from fuel combustion.

Table A33. Ontario Particulates Emissions
- 1995 Point/Area/Mobile/Open Sources

(Kilo-tonnes)

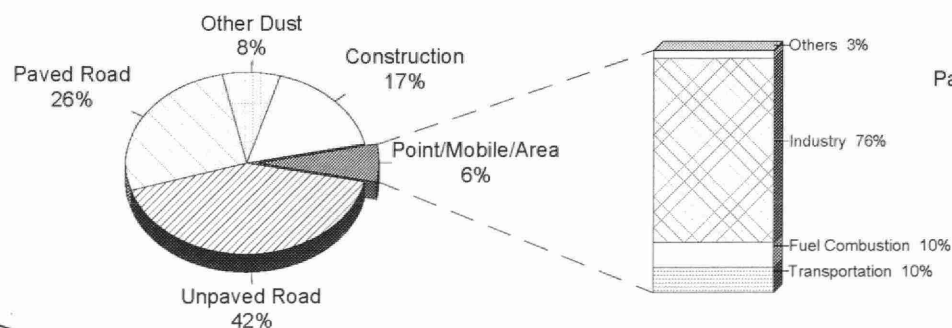
SECTOR	PM	(%)	PM10	(%)	PM2.5	(%)
AREA SOURCES [1]						
Total Vehicles	14.5	(0.4)	14.3	(1.4)	11.7	(4.5)
Off-Highway Engines	5.5	(0.2)	5.3	(0.5)	4.8	(1.8)
Railroad	0.7	(0.0)	0.7	(0.1)	0.7	(0.3)
Aircraft	0.9	(0.0)	0.5	(0.0)	0.3	(0.1)
Marine	1.9	(0.1)	1.7	(0.2)	1.5	(0.6)
Residential [2]	22.3	(0.6)	21.7	(2.1)	21.7	(8.4)
Commercial [2]	1.1	(0.0)	1.0	(0.1)	0.9	(0.4)
Industrial [2]	7.8	(0.2)	7.0	(0.7)	5.9	(2.3)
Incineration	0.8	(0.0)	0.4	(0.0)	0.3	(0.1)
Fires	6.5	(0.2)	5.7	(0.5)	4.4	(1.7)
Dry Cleaning	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Surface Coating	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
General Solvent Use	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Fuel Marketing	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Misc. Processes [3]	74.8	(2.1)	18.6	(1.8)	5.6	(2.2)
SUBTOTAL [5]	136.8	(3.9)	77.0	(7.4)	57.8	(22.5)
POINT SOURCES						
Electric Utilities	5.0	(0.1)	4.0	(0.4)	3.4	(1.3)
Non-Iron Smelters	10.1	(0.3)	7.5	(0.7)	3.1	(1.2)
Other Primary Metals	16.0	(0.5)	8.3	(0.8)	7.1	(2.7)
Petroleum Refineries	3.0	(0.1)	2.2	(0.2)	1.3	(0.5)
Pulp & Paper	22.2	(0.6)	9.4	(0.9)	7.5	(2.9)
Chemicals	1.9	(0.1)	1.6	(0.2)	1.3	(0.5)
Other Manufacturing	14.9	(0.4)	9.4	(0.9)	5.9	(2.3)
Mining	15.1	(0.4)	4.9	(0.5)	1.8	(0.7)
Miscellaneous [4]	1.3	(0.0)	0.5	(0.0)	0.2	(0.1)
SUBTOTAL [5]	89.3	(2.5)	47.9	(4.6)	31.5	(12.2)
OPEN SOURCES						
Agricultural Animal Waste	40.0	(1.1)	20.7	(2.0)	3.3	(1.3)
Agricultural Tilling Operations	6.8	(0.2)	1.4	(0.1)	0.1	(0.0)
Agricultural Wind Erosion	131.3	(3.7)	65.6	(6.3)	1.3	(0.5)
Construction Operations	610.5	(17.4)	134.3	(12.9)	2.7	(1.1)
Dust from Paved Roads	927.5	(26.5)	177.8	(17.0)	42.5	(16.5)
Dust from Unpaved Roads	1,477.3	(42.1)	454.8	(43.6)	66.9	(26.0)
Forest Fires	69.6	(2.0)	59.1	(5.7)	48.7	(18.9)
Landfills Sites	1.6	(0.0)	0.1	(0.0)	0.0	(0.0)
Mine Tailings	10.1	(0.3)	0.8	(0.1)	0.2	(0.1)
Prescribed Burning	4.4	(0.1)	3.6	(0.3)	2.5	(1.0)
SUBTOTAL [5]	3,279.0	(93.6)	918.3	(88.0)	168.3	(65.3)
ONTARIO TOTAL [5]	3,505.1	(100)	1,043.2	(100)	257.6	(100)

Notes :

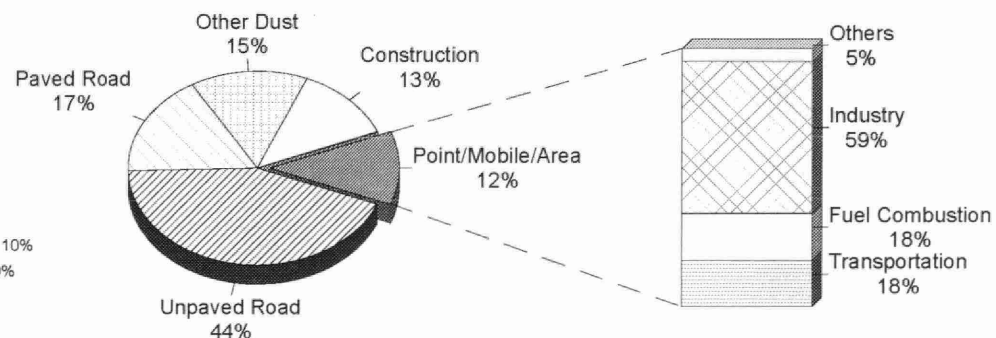
- [1] Forest fires and open sources (such as road dusts, agricultural tilling, wind erosion, etc.) inventoried under open sources.
- [2] Emissions estimated from Statistics Canada information and adjusted for emissions already accounted for under point sources.
- [3] Includes industrial processes that are not accounted for under point sources (e.g. mining, quarrying, stone processing, fertilizer application, grain handling, etc.)
- [4] Includes commercial and major institutional emissions.
- [5] Components may not add up to totals due to rounding.
- [6] Zero values represent no emissions or emissions less than 50 tonnes per year.
- [7] Emission data are a combination of reported and projected emission estimates. These estimates may be revised with updated source/sector information or emission estimation methodologies.

Figure A18. Ontario Particulate Emission Estimates - 1995

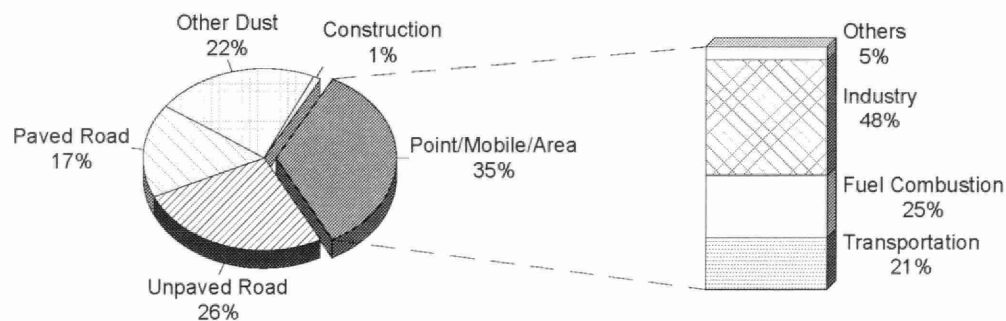
PM



PM10



PM2.5



This page is intentionally left blank.

CANADA EMISSIONS

Table B1. 1990 Criteria Air Contaminant Emissions for Canada (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)				
	SO ₂	NO _x	VOC	CO	TPM
INDUSTRIAL SOURCES	2,389.5	486.3	829.9	691.9	746.6
NON INDUSTRIAL FUEL COMBUSTION	741.6	318.2	260.2	730.2	273.8
TRANSPORTATION	133.8	1,252.2	803.1	7,351.2	125.1
INCINERATION	2.8	7.2	52.8	606.6	33.2
MISCELLANEOUS	0.0	1.4	613.6	47.3	32.6
NATIONAL TOTAL	3,267.6	2,065.2	2,559.7	9,427.1	1,211.0

Source: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.
 (2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: Emissions from open sources are not included.
 Components may not add up to totals due to rounding.

Table B2. 1990 SO₂ Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	38.6	0.7	24.9	34.9	333.6	894.1	505.2	17.1	453.5	72.5	0.3	14.2	2,389.5
NON INDUSTRIAL FUEL COMBUSTION	25.9	3.2	152.0	147.8	24.2	209.2	2.5	70.1	102.5	2.7	0.9	0.6	741.6
TRANSPORTATION	1.8	0.3	2.3	1.8	36.4	51.4	1.5	2.3	10.3	25.1	0.3	0.3	133.8
INCINERATION	0.0	0.0	0.1	0.1	1.0	0.7	0.1	0.1	0.2	0.5	0.0	0.0	2.8
MISCELLANEOUS													
PROVINCIAL TOTAL	66.2	4.2	179.3	184.5	395.1	1,155.4	509.4	89.6	566.5	100.7	1.5	15.2	3,267.6

Source: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Table B3. 1990 NO_x Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	10.6	0.1	9.3	9.0	42.6	153.8	5.8	11.6	179.7	63.7	0.0	0.1	486.3
NON INDUSTRIAL FUEL COMBUSTION	6.4	1.1	26.0	23.1	14.1	102.8	4.1	28.2	98.1	8.8	1.9	3.6	318.2
TRANSPORTATION	25.8	6.4	37.8	35.4	242.7	400.5	63.8	92.6	208.6	128.5	4.7	5.4	1,252.2
INCINERATION	0.1	0.1	0.3	0.3	1.0	1.0	0.1	0.1	0.3	3.9	0.0	0.0	7.2
MISCELLANEOUS	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.8	0.0	0.0	1.4
PROVINCIAL TOTAL	42.8	7.7	73.4	67.8	300.5	658.7	73.7	132.6	486.7	205.7	6.6	9.0	2,065.2

Source: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Figure B1.

Canada 1990 SO₂ Emissions by Province

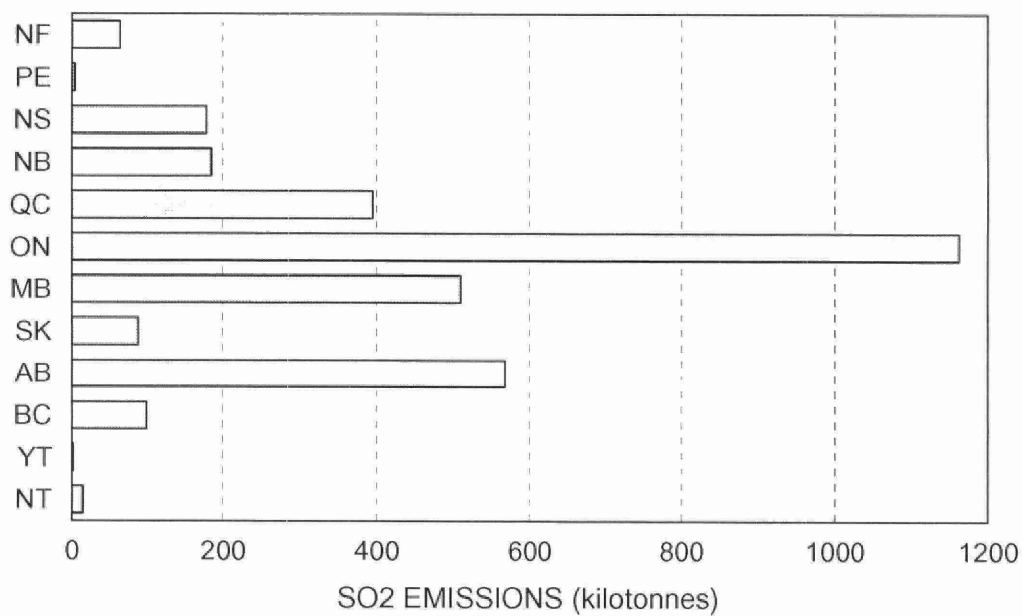


Figure B2.

Canada 1990 NO_x Emissions by Province

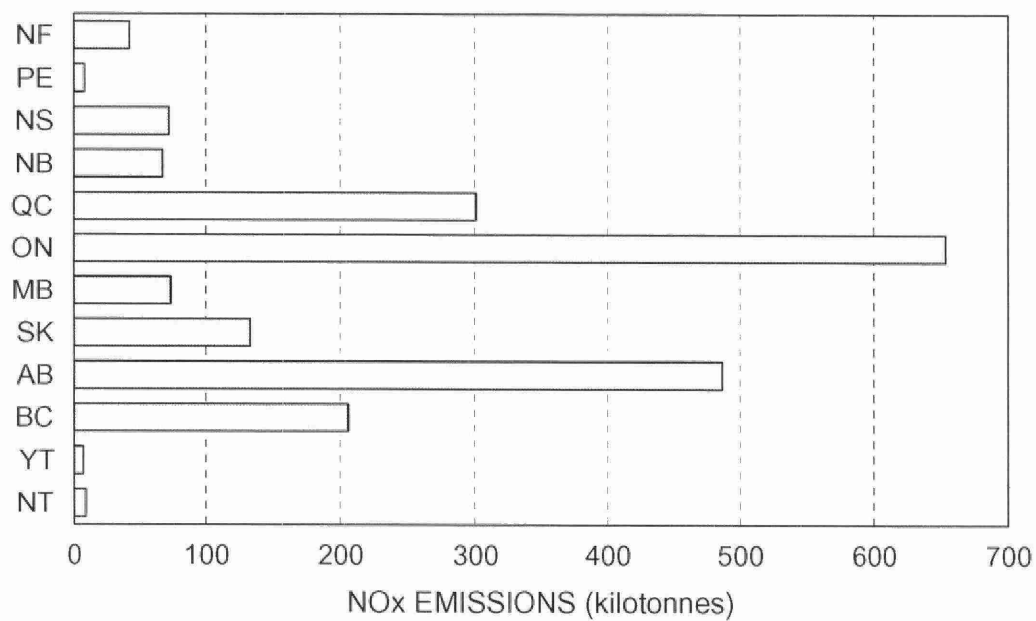


Table B4. 1990 VOC Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	5.7	0.0	8.1	2.0	44.4	142.8	6.0	101.4	458.0	57.5	0.0	4.0	829.9
NON INDUSTRIAL FUEL COMBUSTION	19.0	12.1	28.2	1.0	51.6	119.9	4.8	5.5	3.5	12.0	0.1	2.5	260.2
TRANSPORTATION	16.0	4.2	21.1	22.1	161.4	286.7	40.3	60.2	108.6	79.4	1.6	1.5	803.1
INCINERATION	0.7	0.2	2.1	2.9	4.8	2.3	0.3	0.4	1.9	37.2	0.0	0.0	52.8
MISCELLANEOUS	7.8	2.9	10.2	11.2	137.9	291.7	25.2	39.1	65.6	20.9	0.4	0.7	613.6
PROVINCIAL TOTAL	49.2	19.3	69.8	39.2	400.0	843.3	76.6	206.7	637.7	207.0	2.1	8.8	2,559.7

Source: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Table B5. 1990 CO Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	1.0	0.0	47.8	1.8	289.0	120.4	3.9	8.7	87.6	131.7	0.0	0.0	691.9
NON INDUSTRIAL FUEL COMBUSTION	37.1	21.9	56.2	2.9	276.9	217.1	9.5	13.0	68.4	21.4	0.5	5.3	730.2
TRANSPORTATION	120.1	44.1	199.1	211.1	1,459.6	2,486.7	370.7	634.8	1,129.4	667.1	14.6	13.9	7,351.2
INCINERATION	8.1	1.9	20.0	33.3	57.2	19.5	2.5	4.2	20.0	439.9	0.0	0.0	606.6
MISCELLANEOUS	0.2	0.0	0.2	0.2	1.9	42.6	0.3	0.3	0.7	0.9	0.0	0.0	47.3
PROVINCIAL TOTAL	166.5	68.0	323.4	249.3	2,084.6	2,886.3	386.9	660.9	1,306.0	1,260.9	15.1	19.2	9,427.1

Source: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Figure B3.

Canada 1990 VOC Emissions by Province

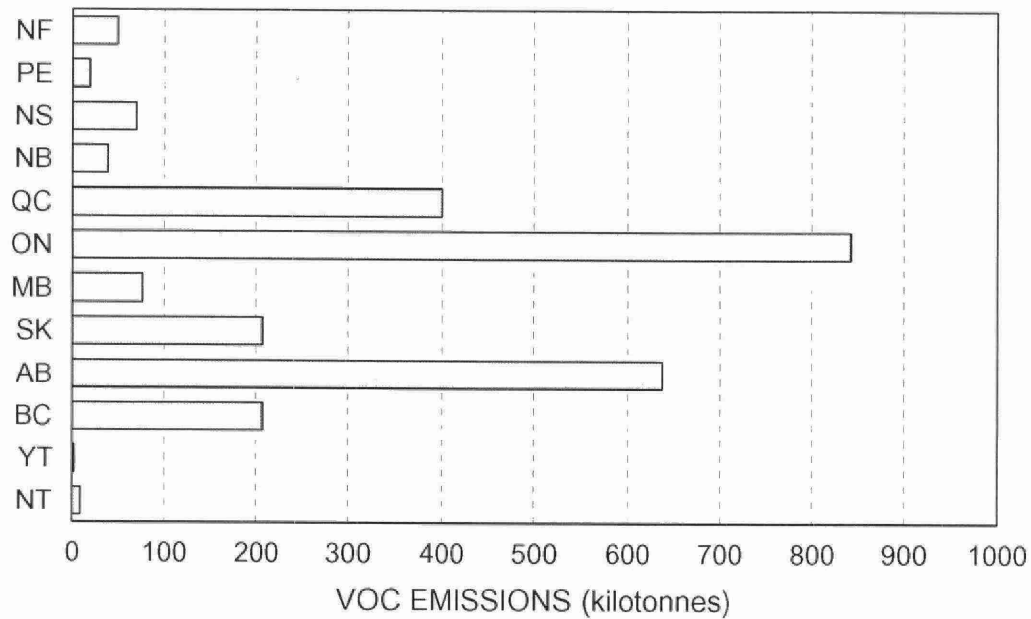


Figure B4.

Canada 1990 CO Emissions by Province

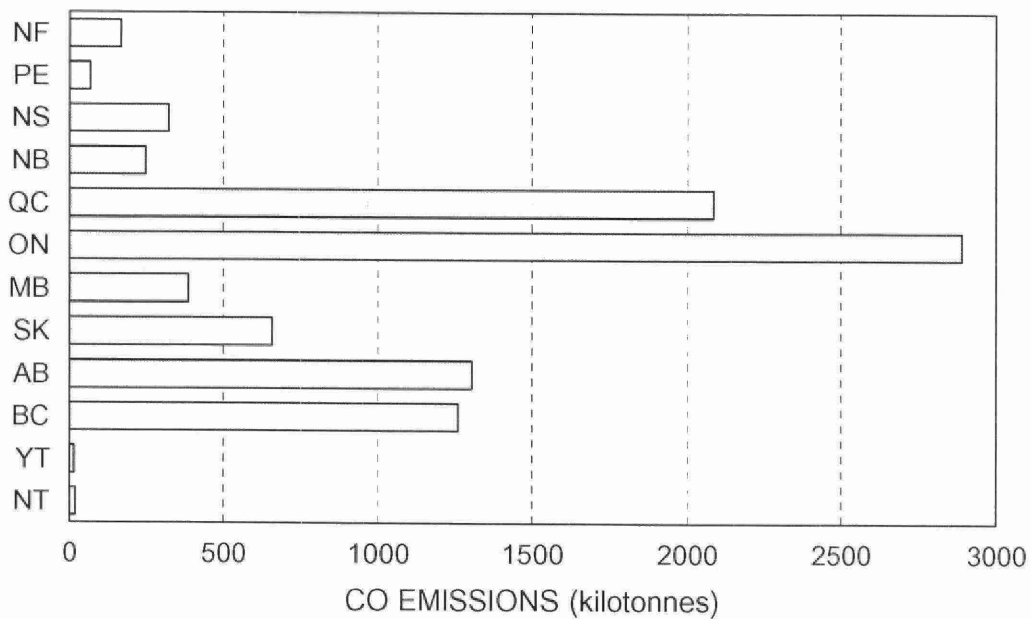


Table B6. 1990 Total Particulate Matter Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	84.6	1.4	30.1	24.9	144.0	174.6	46.2	51.9	87.1	91.3	5.0	5.5	746.6
NON INDUSTRIAL FUEL COMBUSTION	6.7	3.3	13.7	2.8	65.3	38.8	4.3	51.5	83.5	3.1	0.1	0.7	273.8
TRANSPORTATION	2.6	0.6	3.5	3.1	23.6	29.3	5.7	8.5	18.0	29.4	0.4	0.4	125.1
INCINERATION	0.4	0.1	1.0	1.5	4.4	1.0	0.1	0.2	0.9	23.6	0.0	0.0	33.2
MISCELLANEOUS	0.1	0.3	0.3	0.4	1.0	10.5	3.2	6.8	5.1	4.9	0.0	0.0	32.6
PROVINCIAL TOTAL	94.4	5.7	48.5	32.7	238.3	254.2	59.6	118.8	194.4	152.3	5.5	6.6	1,211.0

Source: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Figure B5.

Canada 1990 TPM Emissions by Province

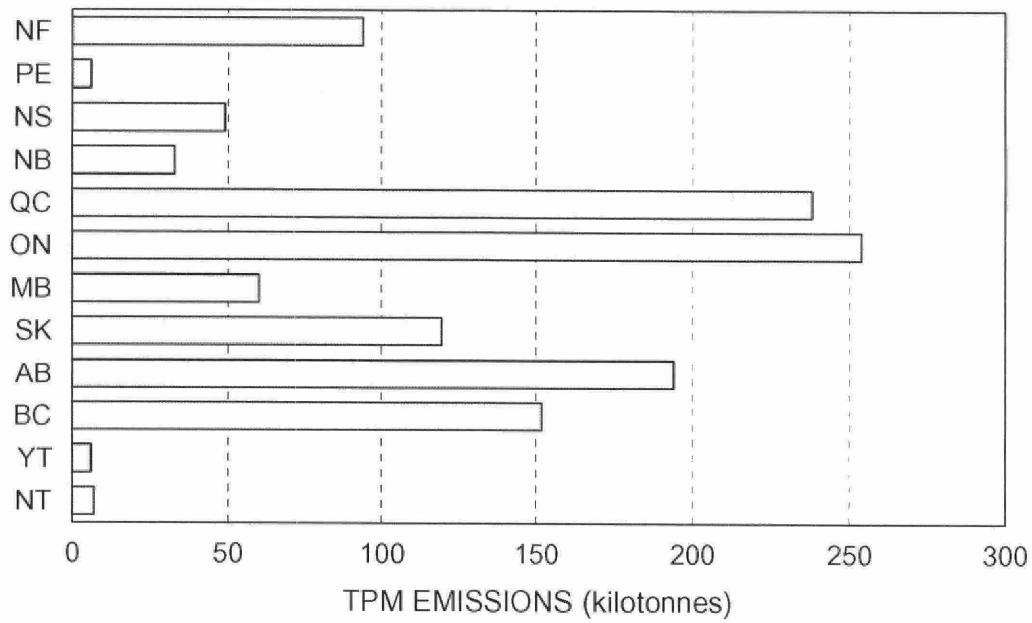


Table B7. 1995 Criteria Air Contaminant Emissions for Canada (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)						
	SO ₂	NO _x	VOC	CO	TPM	PM10	PM2.5
INDUSTRIAL SOURCES	1,923.5	615.7	927.2	1,506.6	621.8	287.5	172.0
NON INDUSTRIAL FUEL COMBUSTION	566.9	320.2	377.6	1,018.9	216.9	173.9	151.8
TRANSPORTATION	128.9	1,291.0	734.6	6,707.2	97.6	95.5	83.3
INCINERATION	1.5	2.9	6.5	46.6	2.6	1.5	1.2
MISCELLANEOUS	0.1	6.7	566.1	345.1	62.9	47.3	36.1
NATIONAL TOTAL	2,620.8	2,236.5	2,612.0	9,624.4	1,001.7	605.8	444.3

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm) for the provincial emissions

(1) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Table B8. 1995 SO₂ Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	43.2	0.9	20.7	40.7	336.4	472.1	361.3	18.4	467.3	147.8	0.0	14.9	1,923.5
NON INDUSTRIAL FUEL COMBUSTION	17.5	0.9	142.8	71.2	8.1	82.7	1.6	108.8	131.3	1.2	0.1	0.6	566.9
TRANSPORTATION	4.3	0.7	3.4	3.6	28.7	45.0	2.6	3.8	9.5	26.9	0.2	0.1	128.9
INCINERATION	0.0	0.0	0.1	0.0	0.5	0.7	0.0	0.0	0.0	0.1	0.0	0.0	1.5
MISCELLANEOUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
PROVINCIAL TOTAL	65.0	2.5	167.1	115.5	373.6	600.5	365.4	131.0	608.0	176.1	0.4	15.6	2,620.8

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Table B9. 1995 NO_x Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	10.5	0.2	10.1	6.3	48.0	93.1	10.6	38.1	327.4	69.9	1.0	0.4	615.7
NON INDUSTRIAL FUEL COMBUSTION	5.5	0.7	28.1	19.1	14.2	76.3	3.9	50.8	103.2	11.4	0.7	6.2	320.2
TRANSPORTATION	26.5	7.1	34.7	37.1	310.2	350.3	59.2	80.2	206.3	173.9	3.0	2.4	1,291.0
INCINERATION	0.1	0.0	0.1	0.1	1.1	1.0	0.0	0.0	0.0	0.5	0.0	0.0	2.9
MISCELLANEOUS	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	2.1	4.1	0.0	0.0	6.7
PROVINCIAL TOTAL	42.6	8.0	73.0	62.6	373.5	521.2	73.7	169.2	639.1	259.8	4.7	9.1	2,236.5

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Figure B6.

Canada 1995 SO₂ Emissions by Province

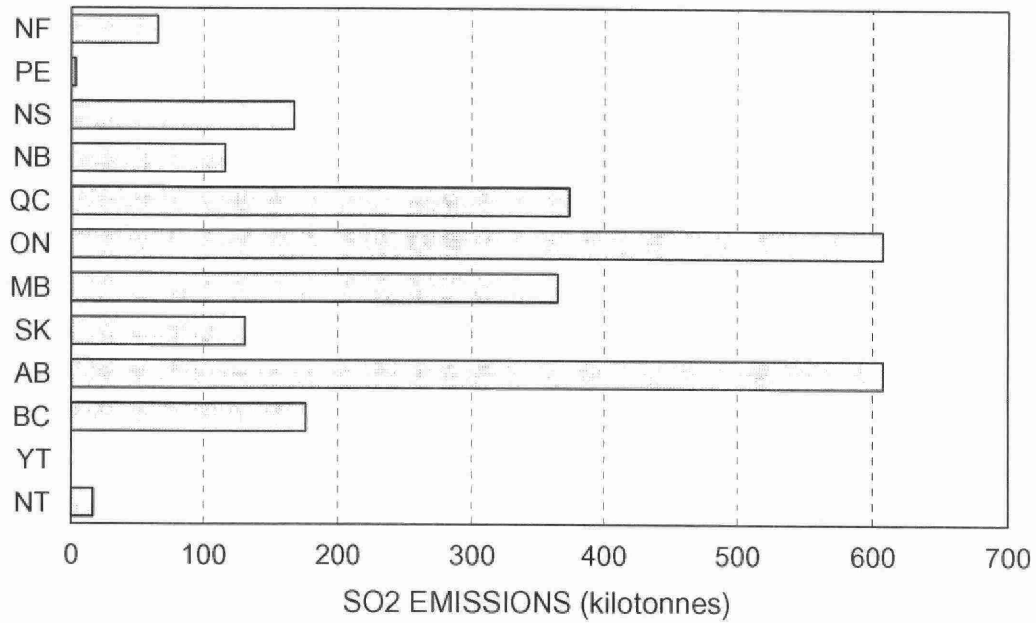


Figure B7.

Canada 1995 NO_x Emissions by Province

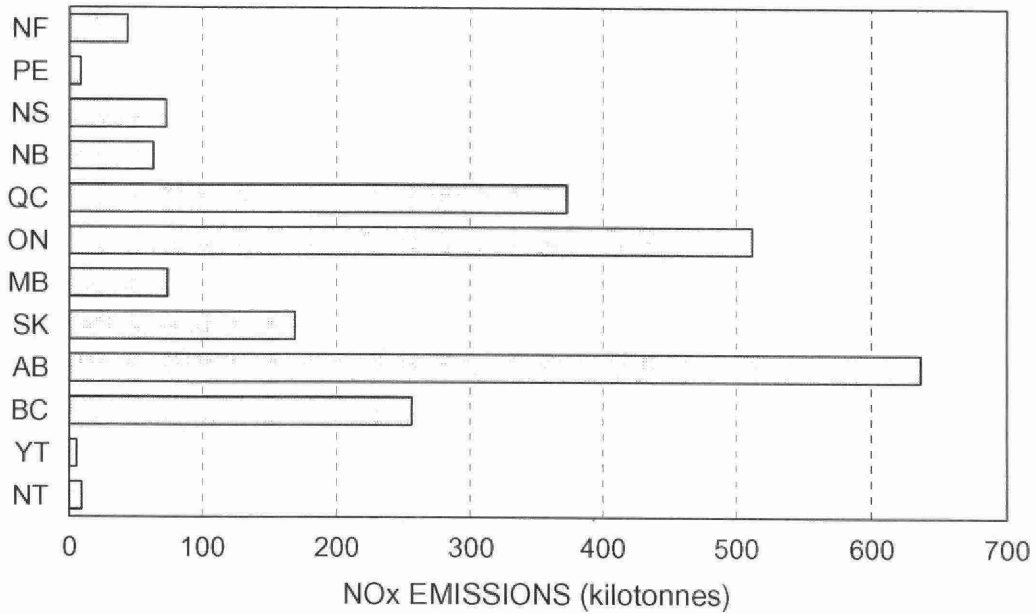


Table B10. 1995 VOC Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	6.4	0.0	12.8	2.8	40.2	123.3	7.9	140.6	497.5	83.6	0.5	11.5	927.2
NON INDUSTRIAL FUEL COMBUSTION	20.4	3.3	29.4	25.8	113.8	86.7	12.7	11.9	37.9	33.6	0.6	1.5	377.6
TRANSPORTATION	16.3	4.3	22.0	22.8	166.5	230.9	42.1	48.7	107.9	70.1	1.2	1.6	734.6
INCINERATION	0.5	0.0	0.4	1.2	0.6	2.3	0.1	0.1	1.1	0.1	0.0	0.0	6.5
MISCELLANEOUS	9.0	2.2	14.1	12.7	123.6	256.7	22.3	19.7	56.6	48.1	0.4	0.6	566.1
PROVINCIAL TOTAL	52.7	9.8	78.8	65.3	444.8	700.0	85.1	221.0	701.1	235.4	2.7	15.3	2,612.0

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Table B11. 1995 CO Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	26.9	0.0	5.5	4.2	403.6	146.9	5.0	14.3	355.8	544.1	0.1	0.1	1,506.6
NON INDUSTRIAL FUEL COMBUSTION	84.5	12.6	107.9	97.7	307.6	157.1	36.3	32.9	70.4	105.1	1.9	5.2	1,018.9
TRANSPORTATION	116.4	41.1	199.4	207.4	1,455.1	2,127.4	402.5	499.6	1,029.6	605.1	11.8	11.7	6,707.2
INCINERATION	5.7	0.0	2.3	13.7	1.6	18.9	1.5	1.6	0.0	1.4	0.0	0.0	46.6
MISCELLANEOUS	3.0	0.1	0.5	0.4	3.2	43.8	2.2	0.7	97.6	193.5	0.1	0.0	345.1
PROVINCIAL TOTAL	236.5	53.8	315.7	323.4	2,171.1	2,494.0	447.4	549.0	1,553.5	1,449.2	13.9	17.0	9,624.4

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Figure B8.

Canada 1995 VOC Emissions by Province

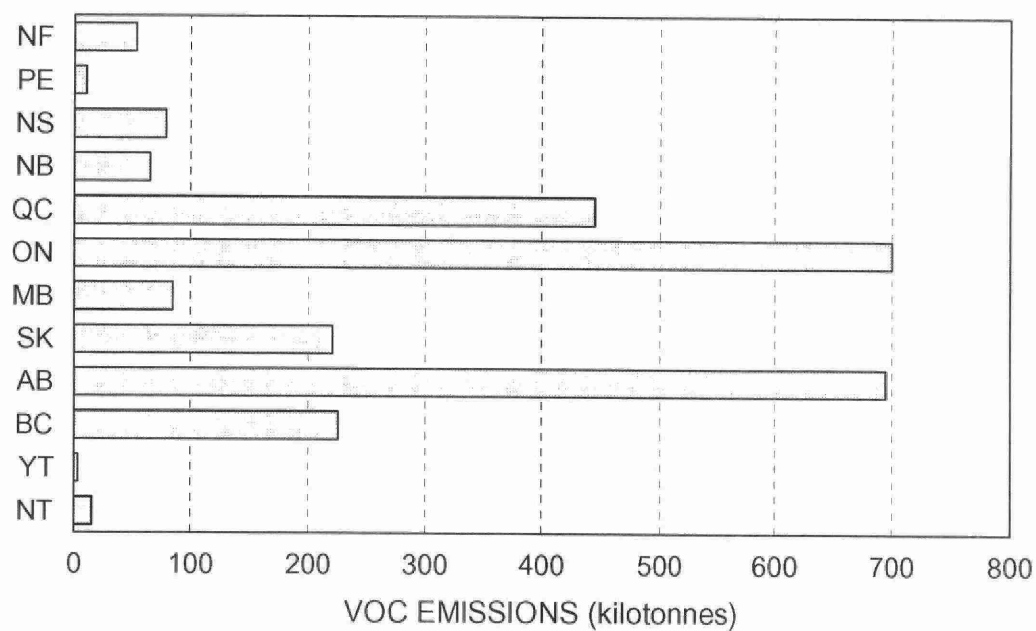


Figure B9.

Canada 1995 CO Emissions by Province

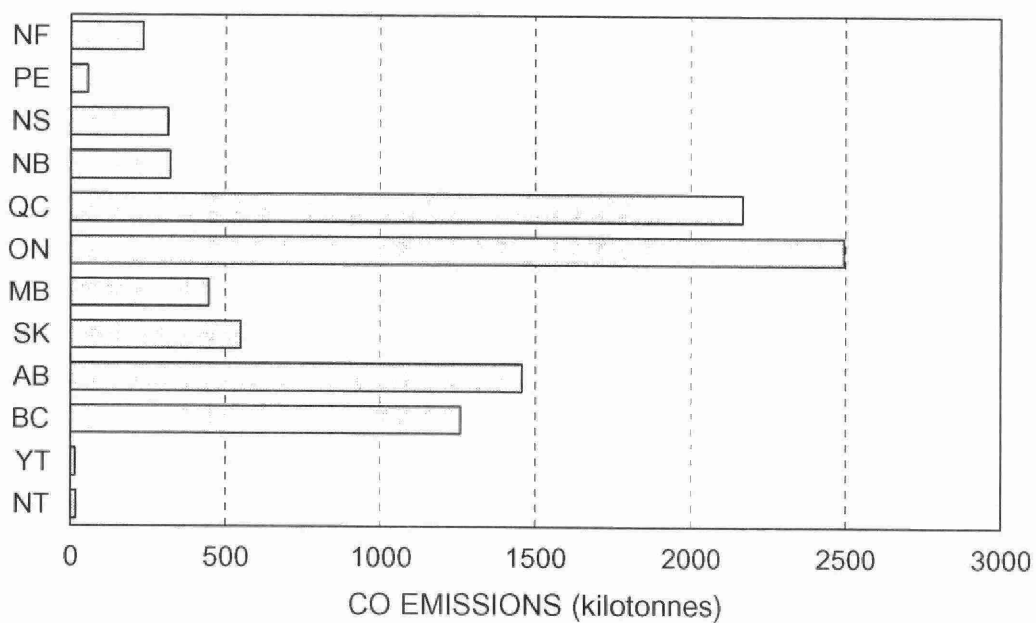


Table B12. 1995 Total Particulate Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	44.9	1.1	19.4	25.2	85.4	163.3	20.1	39.2	73.5	144.9	1.6	3.2	621.8
NON INDUSTRIAL FUEL COMBUSTION	12.6	1.7	16.5	13.9	41.3	29.4	6.1	61.7	18.9	14.0	0.2	0.7	216.9
TRANSPORTATION	1.8	0.5	2.1	2.3	19.3	23.6	3.7	6.0	13.3	24.8	0.2	0.2	97.6
INCINERATION	0.3	0.0	0.1	0.6	0.1	1.0	0.1	0.1	0.0	0.4	0.0	0.0	2.6
MISCELLANEOUS	0.4	0.2	0.4	0.3	2.6	8.8	2.7	3.0	18.9	25.5	0.0	0.0	62.9
PROVINCIAL TOTAL	59.9	3.5	38.4	42.3	148.6	226.1	32.6	110.0	124.7	209.5	2.1	4.0	1,001.7

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Table B13. 1995 PM₁₀ Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	25.1	0.3	7.3	10.3	38.9	67.4	8.1	10.8	38.5	80.1	0.2	0.4	287.5
NON INDUSTRIAL FUEL COMBUSTION	12.1	1.7	14.8	13.2	41.0	27.2	5.4	25.8	17.9	13.8	0.2	0.6	173.9
TRANSPORTATION	1.7	0.5	2.0	2.2	19.0	22.6	3.6	5.9	13	24.6	0.2	0.1	95.5
INCINERATION	0.1	0.0	0.1	0.3	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.0	1.5
MISCELLANEOUS	0.4	0.1	0.3	0.3	2.1	7.2	1.7	1.7	15.4	18.2	0.0	0.0	47.3
PROVINCIAL TOTAL	39.5	2.6	24.5	26.4	101.1	124.9	18.8	44.2	84.8	137.1	0.7	1.2	605.8

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Figure B10.

Canada 1995 TPM Emissions by Province

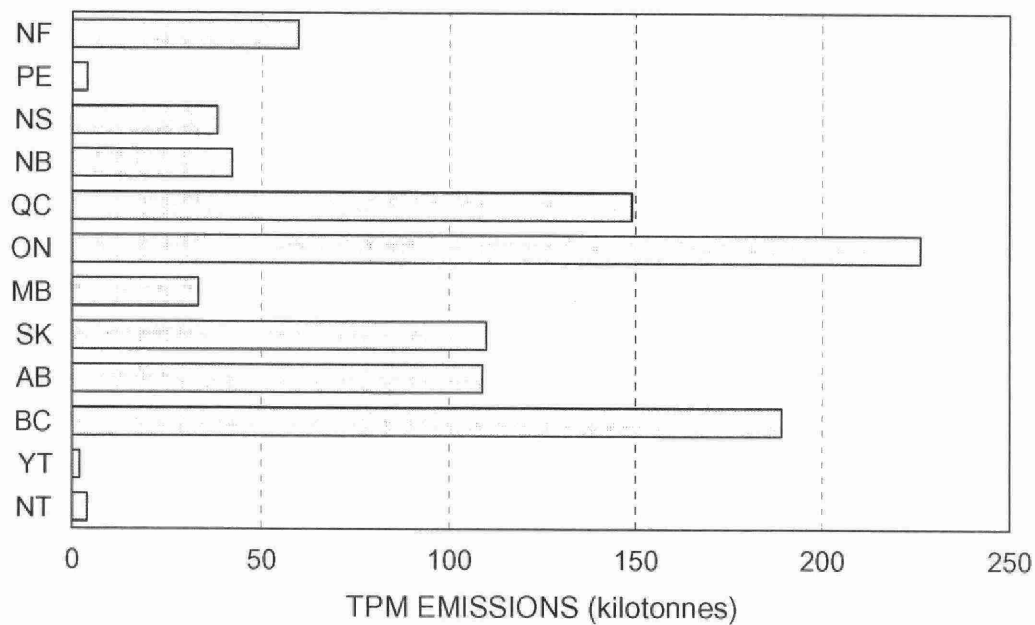


Figure B11.

Canada 1995 PM₁₀ Emissions by Province

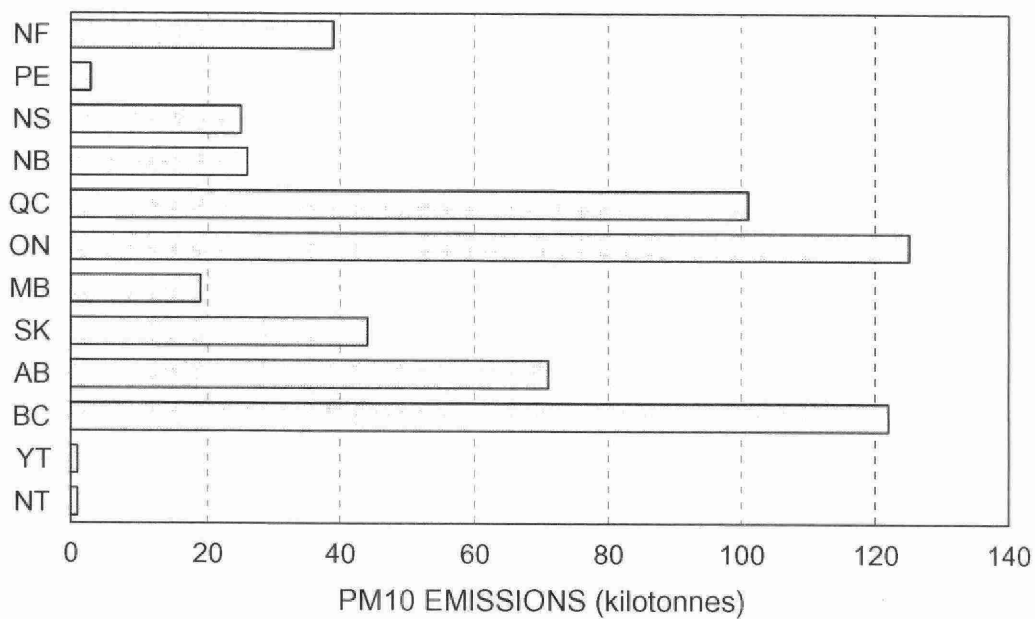


Table B14. 1995 Total PM_{2.5} Emissions by Province (kilotonnes)

CATEGORY	EMISSIONS (kilotonnes)												
	NF ⁽¹⁾	PE ⁽¹⁾	NS ⁽¹⁾	NB ⁽¹⁾	QC ⁽¹⁾	ON ⁽²⁾	MB ⁽¹⁾	SK ⁽¹⁾	AB ⁽¹⁾	BC ⁽¹⁾	YT ⁽¹⁾	NT ⁽¹⁾	CANADA
INDUSTRIAL SOURCES	10.2	0.1	4.0	5.7	22.3	38.5	4.2	4.2	25.9	56.8	0.0	0.1	172.0
NON INDUSTRIAL FUEL COMBUSTION	11.3	1.6	13.8	12.4	38.9	26.2	4.9	11.3	17.3	13.1	0.2	0.6	151.8
TRANSPORTATION	1.5	0.4	1.7	1.9	16.3	19.0	3.1	5.3	11.4	22.3	0.2	0.1	83.3
INCINERATION	0.1	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	1.2
MISCELLANEOUS	0.3	0.1	0.3	0.2	1.6	5.3	1.0	0.7	10.5	16.1	0.0	0.0	36.1
PROVINCIAL TOTAL	23.4	2.2	19.8	20.6	79.2	89.4	13.3	21.4	65.1	108.7	0.5	0.8	444.3

Source: (1) Environment Canada, Pollution Data Branch, December 2002, Version 2, (available at http://www.ec.gc.ca/pdb/apc/cape_home_e.cfm).

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario Emissions.

Note: The 1995 emissions inventory was compiled with the latest technical and statistical information available, only the Sulphur Oxides emissions can be compared to previous emissions inventories.

Emissions from open sources are not included.

Components may not add up to totals due to rounding.

Figure B12.

Canada 1995 PM_{2.5} Emissions by Province

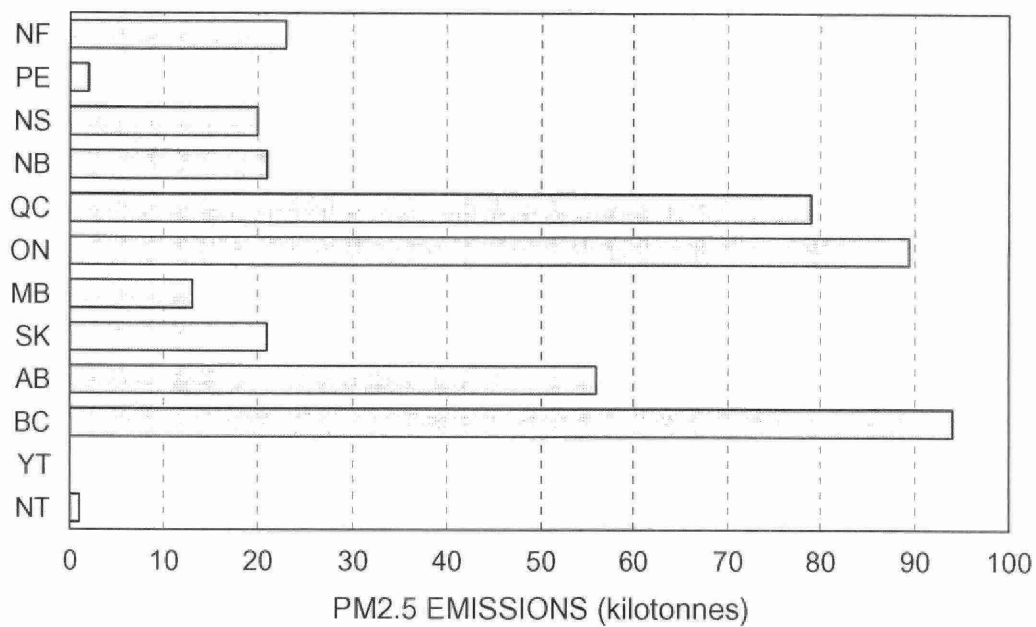


Table B15. Canada 1990-2010 SO₂ Emissions Forecast, by Province

PROVINCE	SO ₂ EMISSIONS (kilotonnes)									
	1990 ⁽¹⁾	% TOTAL	1995 ⁽¹⁾	% TOTAL	2000 ⁽²⁾	% TOTAL	2005 ⁽²⁾	% TOTAL	2010 ⁽²⁾	% TOTAL
NEWFOUNDLAND	66	2	65	3	60	2	47	2	48	2
PEI	4	0	3	0	5	0	5	0	5	0
NOVA SCOTIA	179	5	167	6	150	5	158	6	122	4
NEW BRUNSWICK	185	6	116	4	153	5	175	6	125	4
QUEBEC	395	12	374	14	459	16	369	13	392	14
ONTARIO	1,155	35	601	23	747	27	852	30	895	31
MANITOBA	509	16	365	14	451	16	451	16	451	16
SASKATCHEWAN	90	3	131	5	95	3	90	3	87	3
ALBERTA	567	17	608	23	554	20	565	20	589	21
BRITISH COLUMBIA	101	3	176	7	110	4	121	4	132	5
YUKON/NWT	17	1	16	1	18	1	20	1	22	1
TOTAL	3,268	100	2,621	100	2,802	100	2,854	100	2,867	100

- Source: (1) The emissions for years 1990 and 1995 shown in this table represent the updated emissions estimates (refer to Tables B2 and B8 in Canada section for source of information).
- (2) The forecasted values for years 2000, 2005 and 2010 were extracted from Pollution Data Branch, Environment Canada, March 1996, (available at http://www.ec.gc.ca/pdb/pa/pa_tabprv_e.cfm). It should be noted that these forecasted emissions were projected based on previous 1990 emission estimates that may not be equal to the updated 1990 emissions shown in this table.

Note: Emissions from open sources are not included
Components may not add up to totals due to rounding.

Table B16. Canada 1990-2010 SO₂ Emissions Forecast, by Sector

SECTOR	SO ₂ EMISSIONS (kilotonnes)									
	1990 ⁽¹⁾	% TOTAL	1995 ⁽¹⁾	% TOTAL	2000 ⁽²⁾	% TOTAL	2005 ⁽²⁾	% TOTAL	2010 ⁽²⁾	% TOTAL
INDUSTRIAL SOURCES	2,390	73	1,923	74	2,046	73	2,042	72	2,152	75
POWER GENERATION	690	21	535	20	581	21	628	22	523	18
TRANSPORTATION	134	4	129	5	116	4	124	4	132	5
COMM/RES FUEL COMBUSTION	52	2	32	1	51	2	51	2	50	2
INCINERATION/MISC/OTHER	3	0	2	0	8	0	9	0	10	0
TOTAL	3,268	100	2,621	100	2,802	100	2,854	100	2,867	100

- Source: (1) The emissions for years 1990 and 1995 shown in this table represent the updated emissions estimates (refer to Tables B2 and B8 in Canada section for source of information).
- (2) The forecasted values for years 2000, 2005 and 2010 were extracted from Pollution Data Branch, Environment Canada, March 1996, (available at http://www.ec.gc.ca/pdb/pa/pa_tabprv_e.cfm). It should be noted that these forecasted emissions were projected based on previous 1990 emission estimates that may not be equal to the updated 1990 emissions shown in this table.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Table B17. Canada 1990-2010 NO_x Emissions Forecast, by Province

PROVINCE	NO _x EMISSIONS (kilotonnes)									
	1990 ⁽¹⁾	% TOTAL	1995 ⁽¹⁾	% TOTAL	2000 ⁽²⁾	% TOTAL	2005 ⁽²⁾	% TOTAL	2010 ⁽²⁾	% TOTAL
NEWFOUNDLAND	43	2	43	2	39	2	36	2	38	2
PEI	8	0	8	0	7	0	6	0	6	0
NOVA SCOTIA	73	4	73	3	67	3	68	3	68	3
NEW BRUNSWICK	68	3	63	3	66	3	68	3	62	3
QUEBEC	300	15	373	17	264	13	256	12	263	12
ONTARIO	659	32	521	23	580	28	595	28	628	29
MANITOBA	74	4	74	3	67	3	68	3	69	3
SASKATCHEWAN	133	6	169	8	175	8	173	8	176	8
ALBERTA	487	24	639	29	525	25	543	26	548	25
BRITISH COLUMBIA	206	10	260	12	273	13	290	14	312	14
YUKON/NWT	16	1	14	1	15	1	16	1	17	1
TOTAL	2,065	100	2,236	100	2,080	100	2,121	100	2,187	100

- Source: (1) The emissions for years 1990 and 1995 shown in this table represent the updated emissions estimates (refer to Tables B3 and B9 in Canada section for source of information).
- (2) The forecasted values for years 2000, 2005 and 2010 were extracted from Pollution Data Branch, Environment Canada, March 1996, (available at http://www.ec.gc.ca/pdb/pa/pa_tabprv_e.cfm). It should be noted that these forecasted emissions were projected based on previous 1990 emission estimates that may not be equal to the updated 1990 emissions shown in this table.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Table B18. Canada 1990-2010 NO_x Emissions Forecast, by Sector

SECTOR	NO _x EMISSIONS (kilotonnes)									
	1990 ⁽¹⁾	% TOTAL	1995 ⁽¹⁾	% TOTAL	2000 ⁽²⁾	% TOTAL	2005 ⁽²⁾	% TOTAL	2010 ⁽²⁾	% TOTAL
TRANSPORTATION	1,252	61	1,291	58	1,117	54	1,088	51	1,116	51
INDUSTRIAL SOURCES	486	24	616	28	564	27	627	30	685	31
POWER GENERATION	252	12	242	11	266	13	263	12	234	11
COMM/RES FUEL COMBUSTION	66	3	78	3	69	3	71	3	72	3
INCINERATION/MISC/OTHER	8	0	10	0	64	3	72	3	80	4
TOTAL	2,065	100	2,236	100	2,080	100	2,121	100	2,187	100

- Source: (1) The emissions for years 1990 and 1995 shown in this table represent the updated emissions estimates (refer to Tables B3 and B9 in Canada section for source of information).
- (2) The forecasted values for years 2000, 2005 and 2010 were extracted from Pollution Data Branch, Environment Canada, March 1996, (available at http://www.ec.gc.ca/pdb/pa/pa_tabprv_e.cfm). It should be noted that these forecasted emissions were projected based on previous 1990 emission estimates that may not be equal to the updated 1990 emissions shown in this table.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Table B19. Canada 1990-2010 VOC Emissions Forecast, by Province

PROVINCE	VOC EMISSIONS (kilotonnes)									
	1990 ⁽¹⁾	% TOTAL	1995 ⁽¹⁾	% TOTAL	2000 ⁽²⁾	% TOTAL	2005 ⁽²⁾	% TOTAL	2010 ⁽²⁾	% TOTAL
NEWFOUNDLAND	49	2	53	2	44	2	44	2	45	2
PEI	19	1	10	0	19	1	19	1	20	1
NOVA SCOTIA	70	3	79	3	63	2	64	2	66	2
NEW BRUNSWICK	39	1	65	3	36	1	36	1	38	1
QUEBEC	400	16	445	17	374	14	382	14	398	14
ONTARIO	843	33	700	27	788	29	828	30	883	30
MANITOBA	77	3	85	3	77	3	78	3	81	3
SASKATCHEWAN	207	8	221	9	238	9	243	9	250	9
ALBERTA	638	25	701	27	718	27	735	26	755	26
BRITISH COLUMBIA	207	8	235	9	277	10	300	11	326	11
YUKON/NWT	11	0	18	1	11	0	12	0	13	0
TOTAL	2,560	100	2,612	100	2,682	100	2,782	100	2,915	100

- Source: (1) The emissions for years 1990 and 1995 shown in this table represent the updated emissions estimates (refer to Tables B4 and B10 in Canada section for source of information).
- (2) The forecasted values for years 2000, 2005 and 2010 were extracted from Pollution Data Branch, Environment Canada, March 1996, (available at http://www.ec.gc.ca/pdb/pa/pa_tabprv_e.cfm). It should be noted that these forecasted emissions were projected based on previous 1990 emission estimates that may not be equal to the updated 1990 emissions shown in this table.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

Table B20. Canada 1990-2010 VOC Emissions Forecast, by Sector

SECTOR	VOC EMISSIONS (kilotonnes)									
	1990 ⁽¹⁾	% TOTAL	1995 ⁽¹⁾	% TOTAL	2000 ⁽²⁾	% TOTAL	2005 ⁽²⁾	% TOTAL	2010 ⁽²⁾	% TOTAL
INCINERATION/MISC/ OTHER	666	26	572	22	971	36	1,035	37	1,110	38
INDUSTRIAL SOURCES	830	33	927	36	878	33	921	33	959	33
TRANSPORTATION	803	31	735	28	592	22	584	21	604	21
COMM/RES FUEL COMBUSTION	258	10	375	14	238	9	239	9	239	8
POWER GENERATION	2	0	3	0	3	0	3	0	3	0
TOTAL	2,560	100	2,612	100	2,682	100	2,782	100	2,915	100

- Source: (1) The emissions for years 1990 and 1995 shown in this table represent the updated emissions estimates (refer to Tables B4 and B10 in Canada section for source of information).
- (2) The forecasted values for years 2000, 2005 and 2010 were extracted from Pollution Data Branch, Environment Canada, March 1996, (available at http://www.ec.gc.ca/pdb/pa/pa_tabprv_e.cfm). It should be noted that these forecasted emissions were projected based on previous 1990 emission estimates that may not be equal to the updated 1990 emissions shown in this table.

Note: Emissions from open sources are not included.
Components may not add up to totals due to rounding.

UNITED STATES EMISSIONS

Table C1. 1985-1999 U.S. SO2 Emissions Trend by Sectors (kilotonnes)

Tier1	Tier1 Description	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
01	Fuel Comb. Elec. Util.	14,361	14,239	14,244	14,503	14,710	14,432	14,320	13,986	13,779	13,507	10,959	11,582	11,986	12,207	11,557
02	Fuel Comb. Industrial	2,875	2,827	2,783	2,822	2,799	3,221	2,896	2,938	2,926	2,893	2,993	2,585	2,504	2,477	2,530
03	Fuel Comb. Other	525	554	601	599	566	754	685	711	700	707	718	580	585	532	532
04	Chemical & Allied Product Mfg	414	392	385	407	399	269	227	226	236	246	231	232	235	237	238
05	Metals Processing	946	805	588	642	630	658	528	534	544	508	456	353	387	366	362
06	Petroleum & Related Industries	458	425	404	402	389	390	322	355	347	334	313	304	312	310	309
07	Other Industrial Processes	385	388	380	373	368	362	353	354	353	358	358	350	353	372	375
08	Solvent Utilization	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1
09	Storage & Transport	3	4	4	4	4	6	9	8	4	1	1	5	5	5	5
10	Waste Disposal & Recycling	31	32	32	33	33	38	39	39	64	54	42	37	37	38	33
11	Highway Vehicles	474	478	488	501	517	508	520	531	477	278	282	311	321	325	329
12	Off-Highway	577	607	636	674	705	831	856	878	881	898	906	770	795	820	850
14	Miscellaneous	10	8	12	25	10	11	10	9	9	14	9	14	14	11	11
	Total (Exclude Miscellaneous)	21,050	20,752	20,545	20,961	21,120	21,470	20,755	20,559	20,312	19,787	17,261	17,109	17,521	17,691	17,121

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Components may not add up to totals due to rounding.

Figure C1. 1985-1999 U.S. SO₂ Emissions Trend by Sectors (kilotonnes)

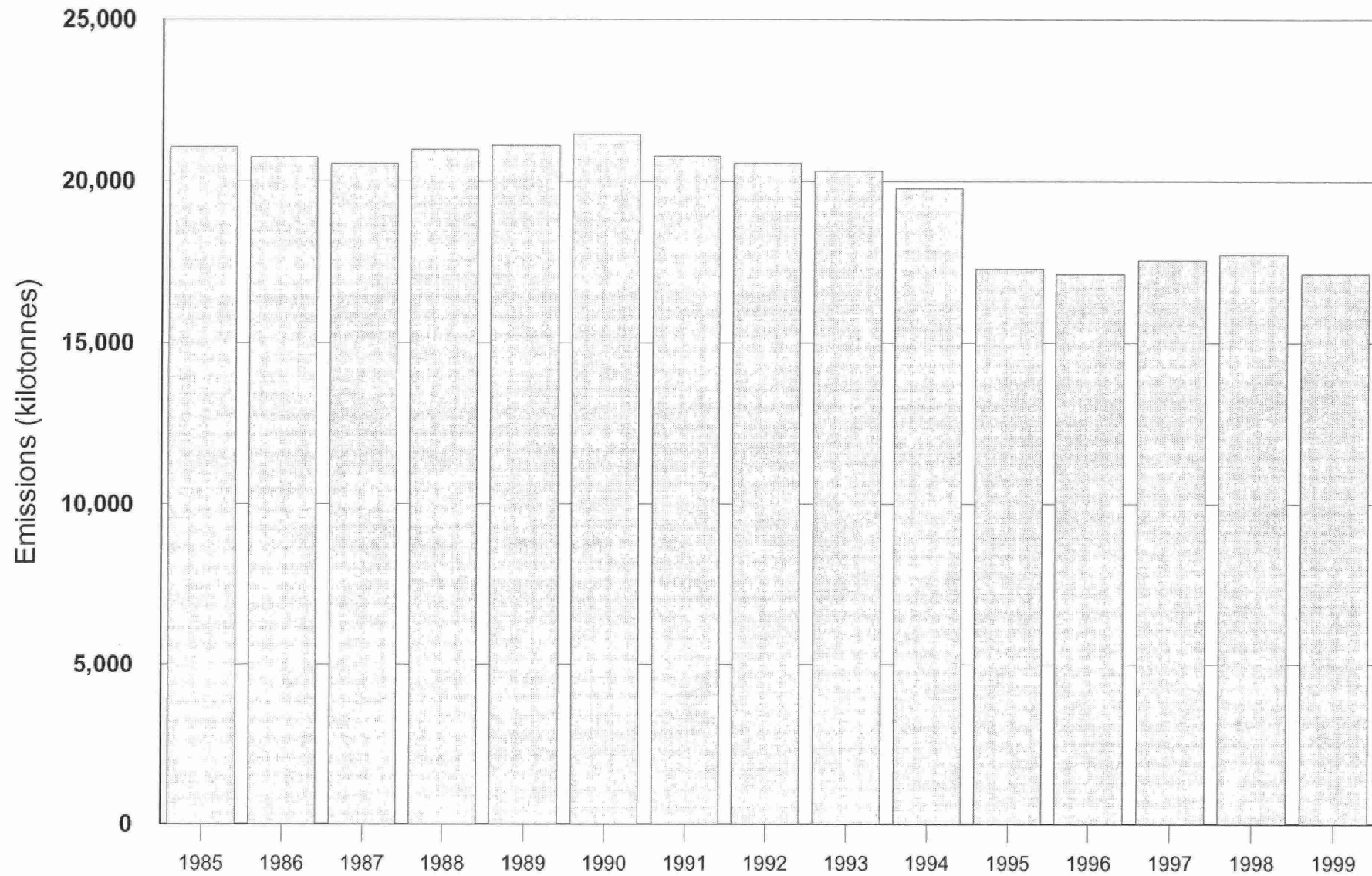


Table C2. 1985-1999 U.S. NOx Emissions Trends by Sectors (kilotonnes)

Tier1	Tier1 Description	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
01	Fuel Comb. Elec. Util.	5,558	5,544	5,666	5,937	5,981	6,045	5,906	5,895	6,034	5,956	5,791	5,589	5,697	5,675	5,200
02	Fuel Comb. Industrial	2,911	2,780	2,779	2,891	2,911	2,754	2,562	2,664	2,804	2,821	2,731	2,831	2,800	2,765	2,840
03	Fuel Comb. Other	645	630	640	671	667	1,085	1,155	1,218	1,179	1,177	1,172	1,099	1,075	1,009	1,063
04	Chemical & Allied Product Mfg	238	239	232	248	248	152	128	131	140	143	132	112	115	117	118
05	Metals Processing	79	73	68	74	75	88	66	70	70	78	84	73	92	80	79
06	Petroleum & Related Industries	113	99	91	91	88	139	96	121	111	101	90	125	130	130	130
07	Other Industrial Processes	296	298	290	286	282	343	315	323	330	347	351	388	396	419	421
08	Solvent Utilization	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
09	Storage & Transport	2	2	2	2	2	3	5	4	4	4	4	14	14	15	15
10	Waste Disposal & Recycling	79	79	77	77	76	83	84	85	111	100	87	90	88	93	82
11	Highway Vehicles	7,339	7,052	6,941	6,950	6,969	6,541	6,856	7,039	7,222	7,417	7,218	7,977	8,096	7,998	7,793
12	Off-Highway	3,400	3,552	3,707	3,877	3,985	4,356	4,443	4,474	4,481	4,548	4,651	4,915	5,000	5,025	5,004
14	Miscellaneous	281	234	320	659	266	335	259	230	218	353	241	377	365	290	290
	Total (Exclude Miscellaneous)	20,662	20,350	20,495	21,108	21,286	21,590	21,617	22,026	22,489	22,693	22,312	23,216	23,506	23,327	22,748

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Components may not add up to totals due to rounding.

Figure C2. 1985-1999 U.S. NO_x Emissions Trends by Sectors (kilotonnes)

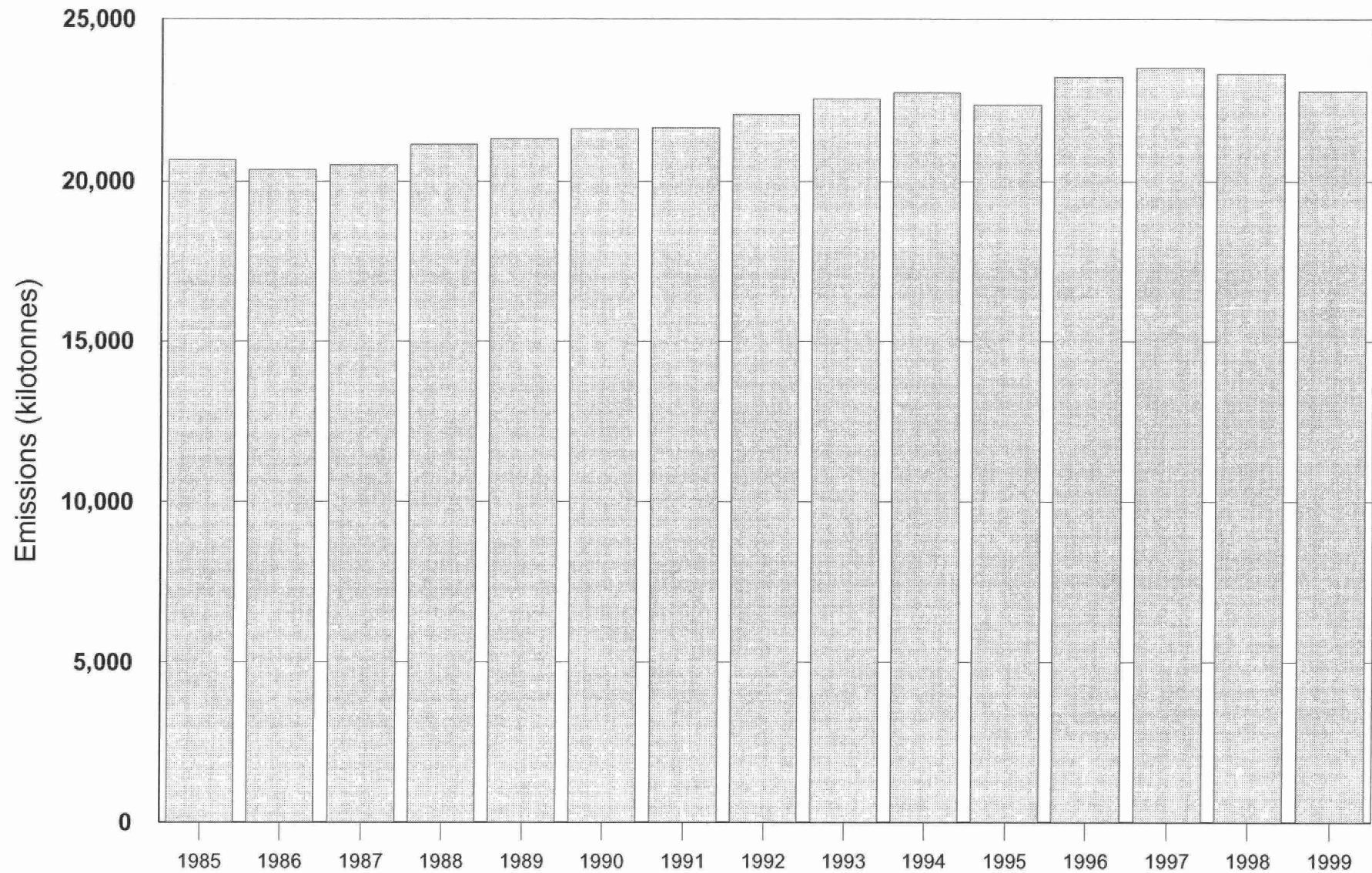


Table C3. 1985-1999 U.S. VOC Emissions Trends by Sectors (kilotonnes)

Tier1	Tier1 Description	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
01	Fuel Comb. Elec. Util.	29	31	31	33	34	43	40	39	41	41	40	45	51	51	50
02	Fuel Comb. Industrial	122	121	119	123	122	165	164	156	166	173	174	161	170	158	162
03	Fuel Comb. Other	1,273	1,115	1,013	1,077	1,088	704	757	801	691	678	747	763	644	570	608
04	Chemical & Allied Product Mfg	799	831	837	891	889	575	615	631	627	620	560	344	352	358	359
05	Metals Processing	69	66	63	67	67	111	108	108	108	110	109	64	83	70	69
06	Petroleum & Related Industries	637	604	594	585	580	555	554	549	586	578	564	432	442	440	385
07	Other Industrial Processes	353	359	358	370	366	364	349	369	399	394	403	393	409	415	420
08	Solvent Utilization	5,169	5,104	5,209	5,393	5,411	5,216	5,223	5,321	5,432	5,566	5,579	4,965	5,102	4,674	4,380
09	Storage & Transport	1,585	1,518	1,634	1,671	1,591	1,356	1,370	1,414	1,445	1,468	1,477	1,171	1,208	1,208	1,129
10	Waste Disposal & Recycling	888	881	862	870	853	895	905	915	949	948	967	381	385	391	534
11	Highway Vehicles	8,506	8,050	7,690	7,520	6,524	5,845	6,042	5,705	5,759	5,954	5,276	5,027	4,933	4,935	4,806
12	Off-Highway	2,215	2,249	2,287	2,333	2,315	2,309	2,341	2,353	2,381	2,424	2,449	3,228	3,090	2,993	2,932
14	Miscellaneous	512	496	594	1,116	582	961	684	440	504	652	499	683	1,082	648	649
	Total (Exclude Miscellaneous)	21,647	20,927	20,697	20,934	19,840	18,136	18,466	18,361	18,582	18,954	18,344	16,975	16,868	16,263	15,836

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Components may not add up to totals due to rounding.

Figure C3. 1985-1999 U.S. VOC Emissions Trends by Sectors (kilotonnes)

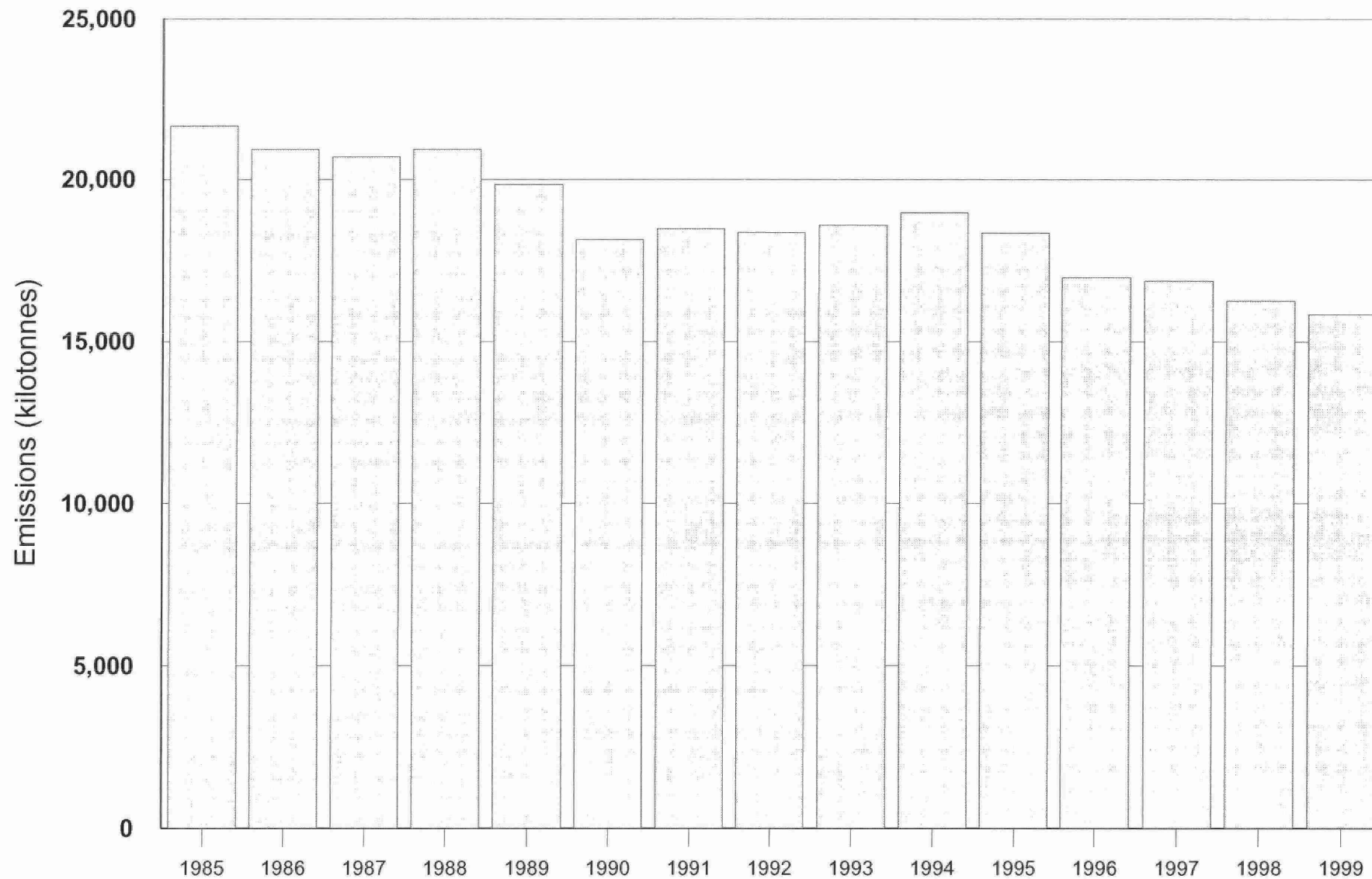


Table C4. 1985-1999 U.S. CO Emissions Trends by Sectors (kilotonnes)

Tier1	Tier1 Description	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
01	Fuel Comb. Elec. Util.	264	264	273	285	291	329	313	314	329	332	334	369	381	408	403
02	Fuel Comb. Industrial	607	590	589	607	610	798	783	820	926	934	909	1,074	1,053	1,042	1,066
03	Fuel Comb. Other	6,824	5,992	5,452	5,795	5,849	3,873	4,159	4,397	3,792	3,726	4,086	4,175	3,536	3,151	3,355
04	Chemical & Allied Product Mfg	1,674	1,681	1,631	1,739	1,747	1,074	825	842	980	1,059	907	898	972	981	981
05	Metals Processing	2,016	1,886	1,800	1,906	1,934	2,395	2,262	2,217	2,198	2,172	2,080	1,420	1,545	1,538	1,517
06	Petroleum & Related Industries	419	409	412	400	396	302	292	314	333	301	291	321	333	332	332
07	Other Industrial Processes	629	649	647	645	649	487	480	475	538	541	550	505	527	535	543
08	Solvent Utilization	2	2	1	2	2	4	4	4	4	5	5	1	1	1	1
09	Storage & Transport	44	46	45	51	50	69	20	15	46	22	22	63	65	65	65
10	Waste Disposal & Recycling	1,761	1,738	1,679	1,639	1,585	979	1,011	1,031	1,132	1,109	1,074	1,012	1,024	1,036	3,440
11	Highway Vehicles	70,206	66,540	64,638	64,484	59,921	53,021	57,152	55,553	56,095	57,065	49,724	49,341	48,367	47,501	45,350
12	Off-Highway	14,124	14,504	14,885	15,284	15,655	16,502	16,860	17,236	17,592	17,959	18,347	23,050	22,856	22,787	22,827
14	Miscellaneous	7,184	6,604	8,030	14,418	7,396	10,090	7,818	6,291	6,425	8,760	6,621	9,556	11,371	8,495	8,508
	Total (Exclude Miscellaneous)	98,571	94,301	92,052	92,837	88,689	79,831	84,162	83,218	83,964	85,225	78,330	82,228	80,661	79,378	79,883

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Components may not add up to totals due to rounding.

Figure C4. 1985-1999 U.S. CO Emissions Trends by Sectors (kilotonnes)

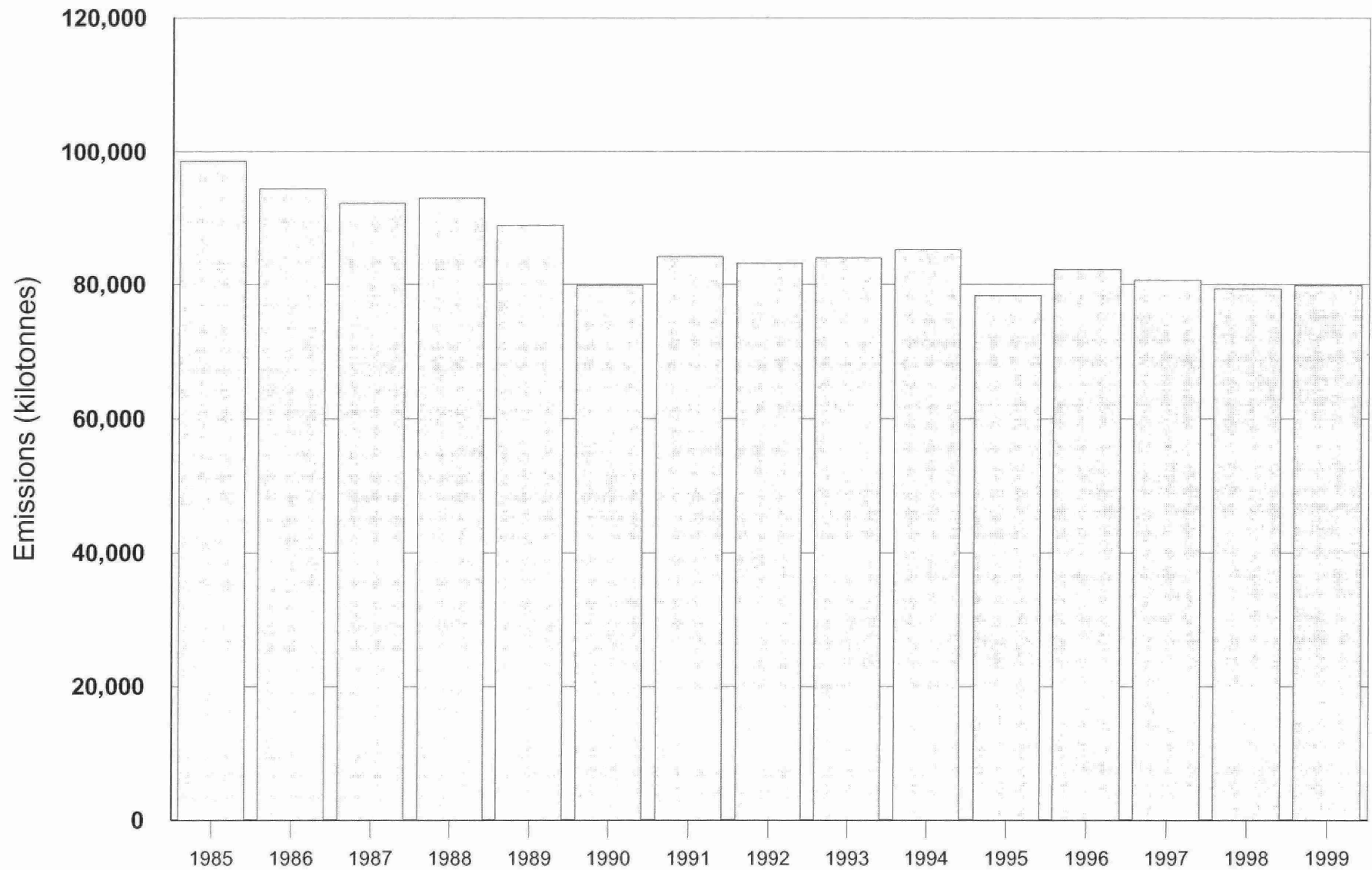


Table C5. 1985-1999 U.S. PM10 Emissions Trends by Sectors (kilotonnes)

Tier1	Tier1 Description	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
01	Fuel Comb. Elec. Util.	254	257	255	250	246	267	233	233	253	247	243	262	267	208	204
02	Fuel Comb. Industrial	224	221	217	221	220	245	201	212	227	242	220	217	211	208	214
03	Fuel Comb. Other	915	806	736	782	788	573	596	619	533	517	553	574	498	487	515
04	Chemical & Allied Product Mfg	52	53	53	56	57	70	58	61	59	68	58	58	58	59	60
05	Metals Processing	199	184	176	189	191	194	225	224	161	165	188	130	137	136	134
06	Petroleum & Related Industries	58	57	56	55	53	50	38	38	34	34	35	27	27	27	27
07	Other Industrial Processes	555	562	550	546	536	529	465	454	452	448	456	295	305	307	311
08	Solvent Utilization	2	2	2	2	2	4	4	5	6	6	5	5	5	6	6
09	Storage & Transport	97	94	91	92	91	93	87	105	101	95	94	73	75	76	77
10	Waste Disposal & Recycling	252	249	241	235	227	246	250	252	303	284	260	275	278	281	533
11	Highway Vehicles	329	323	327	335	333	317	320	317	296	294	272	313	301	283	268
12	Off-Highway	384	400	416	428	431	444	444	445	438	435	413	429	427	423	415
14	Miscellaneous	34,229	33,630	33,972	35,776	33,977	22,265	21,984	21,735	22,071	23,243	20,652	19,742	20,908	21,122	18,719
	Total (Exclude Miscellaneous)	3,321	3,209	3,119	3,190	3,176	3,030	2,920	2,964	2,865	2,835	2,797	2,658	2,589	2,501	2,762

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Components may not add up to totals due to rounding.

Figure C5. 1985-1999 U.S. PM10 Emissions Trends by Sectors (kilotonnes)

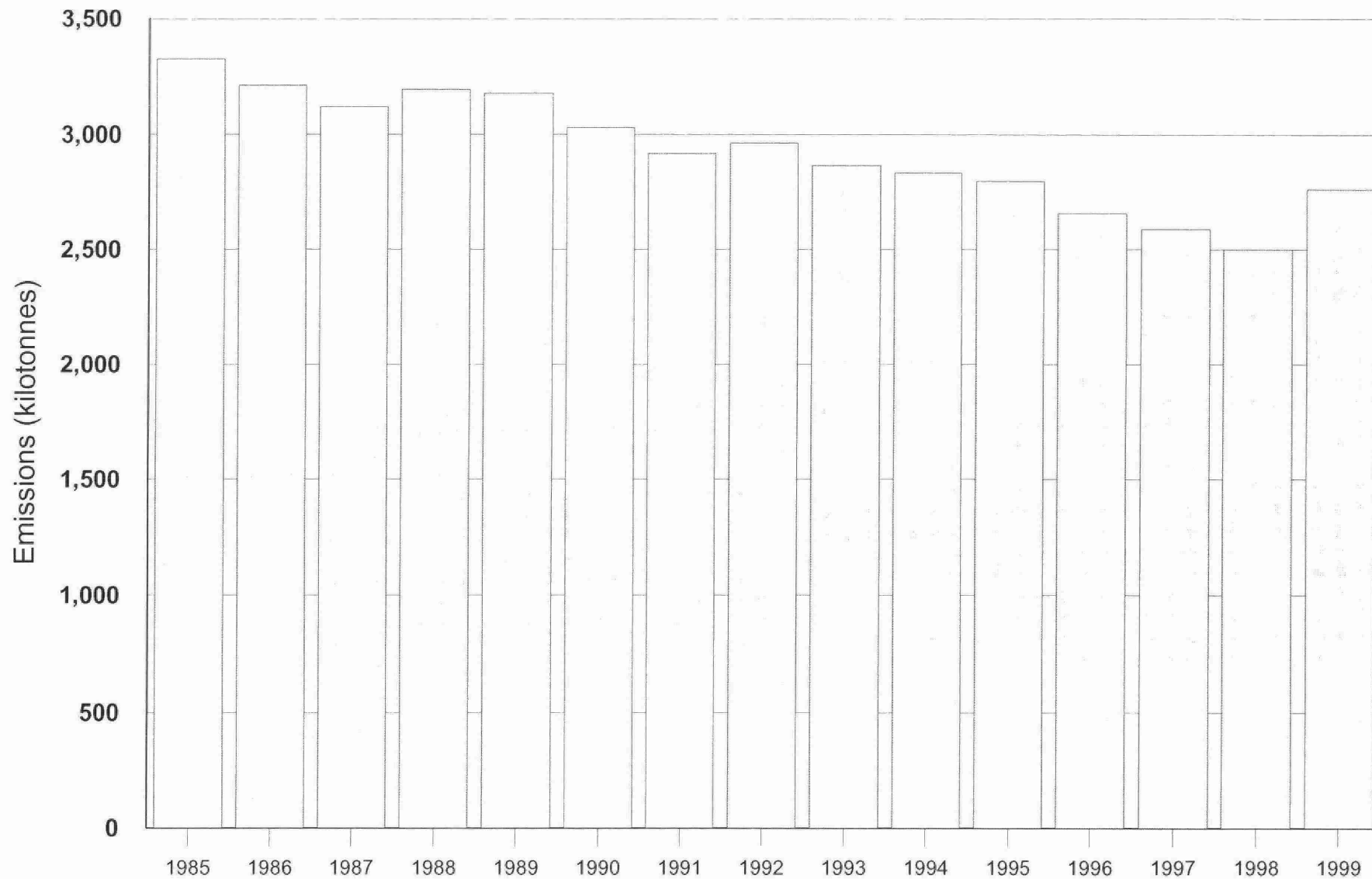


Table C6. 1985 U.S. SO2 Emissions by State (kilotonnes)

RANK	STATE	SO2	% of U.S.	RANK	STATE	SO2	% of U.S.
1	Ohio	2,311	11.0%	27	Kansas	181	0.9%
2	Indiana	1,855	8.8%	28	Wyoming	178	0.8%
3	Pennsylvania	1,369	6.5%	29	Washington	176	0.8%
4	Illinois	1,268	6.0%	30	Mississippi	163	0.8%
5	Texas	1,244	5.9%	31	North Dakota	157	0.7%
6	Missouri	1,036	4.9%	32	Minnesota	151	0.7%
7	Georgia	1,014	4.8%	33	Oklahoma	136	0.6%
8	West Virginia	990	4.7%	34	Arkansas	110	0.5%
9	Tennessee	888	4.2%	35	Delaware	108	0.5%
10	Kentucky	736	3.5%	36	Colorado	99	0.5%
11	Alabama	664	3.2%	37	Montana	82	0.4%
12	Arizona	629	3.0%	38	New Hampshire	80	0.4%
13	New York	606	2.9%	39	Connecticut	77	0.4%
14	Florida	590	2.8%	40	Maine	72	0.3%
15	Michigan	506	2.4%	41	Utah	68	0.3%
16	Wisconsin	465	2.2%	42	Nebraska	56	0.3%
17	North Carolina	445	2.1%	43	Oregon	44	0.2%
18	Louisiana	369	1.8%	44	Nevada	43	0.2%
19	Virginia	290	1.4%	45	South Dakota	38	0.2%
20	Massachusetts	290	1.4%	46	Idaho	35	0.2%
21	Maryland	287	1.4%	47	Hawaii	17	0.1%
22	Iowa	247	1.2%	48	Rhode Island	9	0.0%
23	South Carolina	230	1.1%	49	District of Columbia	7	0.0%
24	California	218	1.0%	50	Vermont	6	0.0%
25	New Mexico	215	1.0%	51	Alaska	6	0.0%
25	New Jersey	191	0.9%				
					U.S. Total	21,050	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C6. 1985 U.S. SO₂ Emissions by State (kilotonnes)

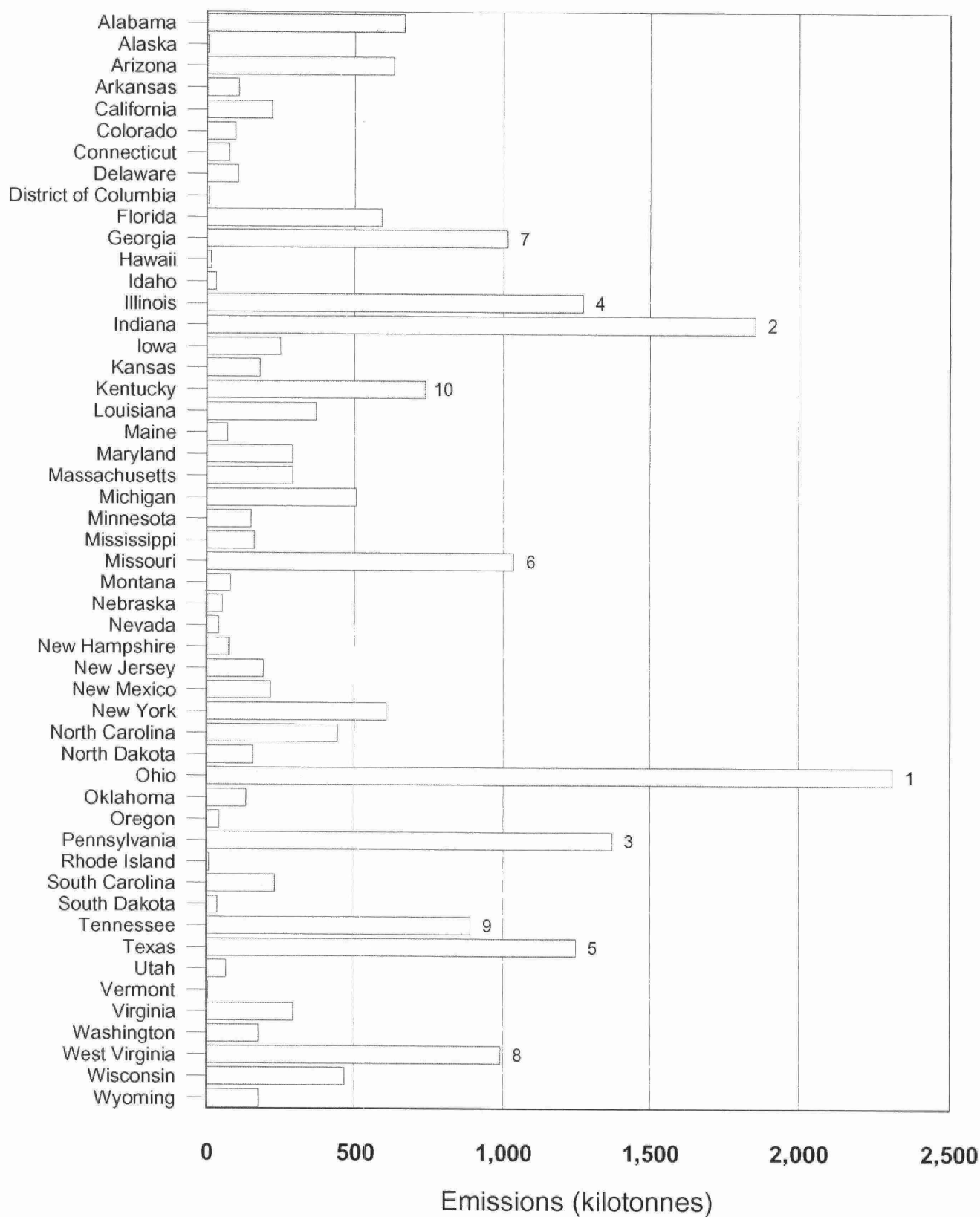


Table C7. 1985 U.S. NOx Emissions by State (kilotonnes)

RANK	STATE	NOx	% of U.S.	RANK	STATE	NOx	% of U.S.
1	Texas	2,198	10.6%	27	Colorado	274	1.3%
2	California	1,426	6.9%	28	South Carolina	272	1.3%
3	Ohio	1,038	5.0%	29	Iowa	272	1.3%
4	Pennsylvania	933	4.5%	30	Mississippi	253	1.2%
5	Illinois	891	4.3%	31	New Mexico	249	1.2%
6	Indiana	778	3.8%	32	Arizona	242	1.2%
7	Louisiana	747	3.6%	33	Wyoming	202	1.0%
8	Florida	732	3.5%	34	Arkansas	202	1.0%
9	New York	704	3.4%	35	Oregon	193	0.9%
10	Michigan	666	3.2%	36	North Dakota	184	0.9%
11	Georgia	597	2.9%	37	Nebraska	161	0.8%
12	North Carolina	567	2.7%	38	Utah	154	0.7%
13	Kentucky	554	2.7%	39	Connecticut	145	0.7%
14	Tennessee	540	2.6%	40	Montana	122	0.6%
15	West Virginia	496	2.4%	41	Nevada	98	0.5%
16	Missouri	474	2.3%	42	South Dakota	88	0.4%
17	Alabama	462	2.2%	43	New Hampshire	79	0.4%
18	Virginia	433	2.1%	44	Maine	78	0.4%
19	New Jersey	421	2.0%	45	Idaho	78	0.4%
20	Oklahoma	416	2.0%	46	Delaware	66	0.3%
21	Kansas	373	1.8%	47	Hawaii	41	0.2%
22	Wisconsin	370	1.8%	48	Alaska	40	0.2%
23	Massachusetts	330	1.6%	49	Rhode Island	33	0.2%
24	Minnesota	320	1.6%	50	Vermont	31	0.2%
25	Washington	316	1.5%	51	District of Columbia	20	0.1%
25	Maryland	301	1.5%				
					U.S. Total	20,662	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C7. 1985 U.S. NO_x Emissions by State (kilotonnes)

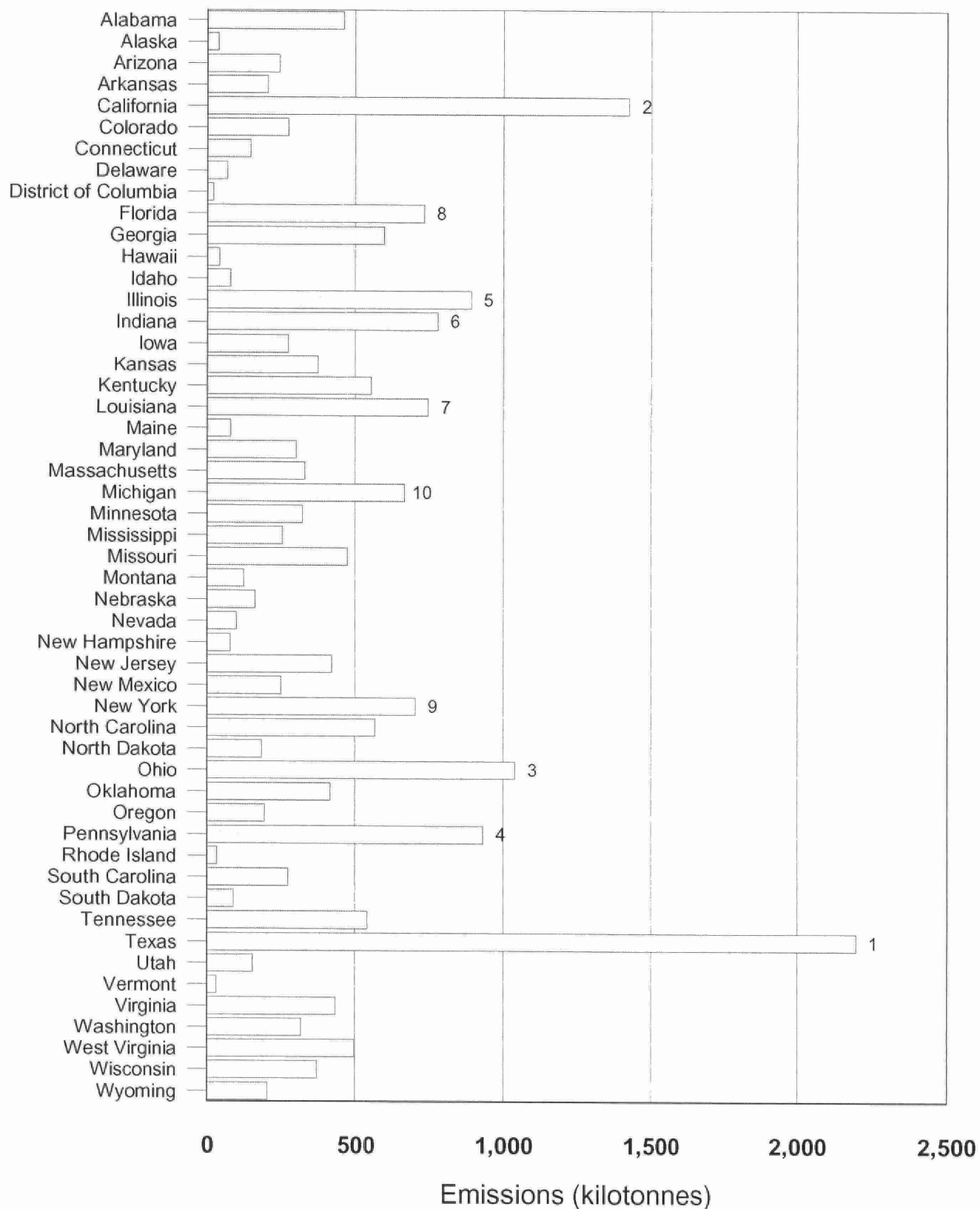


Table C8. 1985 U.S. VOC Emissions by State (kilotonnes)

RANK	STATE	VOC	% of U.S.	RANK	STATE	VOC	% of U.S.
1	Texas	2,053	9.5%	27	Colorado	279	1.3%
2	California	1,837	8.5%	28	Alaska	271	1.3%
3	New York	1,051	4.9%	29	Oregon	253	1.2%
4	Florida	950	4.4%	30	Arkansas	252	1.2%
5	Illinois	949	4.4%	31	Iowa	243	1.1%
6	Pennsylvania	924	4.3%	32	Kansas	243	1.1%
7	Michigan	916	4.2%	33	West Virginia	227	1.1%
8	Ohio	913	4.2%	34	Arizona	222	1.0%
9	North Carolina	712	3.3%	35	Connecticut	208	1.0%
10	Virginia	621	2.9%	36	Utah	152	0.7%
11	New Jersey	607	2.8%	37	New Mexico	140	0.6%
12	Indiana	592	2.7%	38	Nebraska	138	0.6%
13	Tennessee	543	2.5%	39	Maine	118	0.5%
14	Louisiana	540	2.5%	40	Idaho	99	0.5%
15	Georgia	525	2.4%	41	North Dakota	94	0.4%
16	Missouri	484	2.2%	42	Montana	91	0.4%
17	Wisconsin	472	2.2%	43	Nevada	85	0.4%
18	Massachusetts	431	2.0%	44	New Hampshire	84	0.4%
19	Minnesota	422	1.9%	45	South Dakota	78	0.4%
20	Alabama	419	1.9%	46	Delaware	78	0.4%
21	Washington	394	1.8%	47	Rhode Island	70	0.3%
22	Kentucky	368	1.7%	48	Wyoming	65	0.3%
23	Oklahoma	343	1.6%	49	Hawaii	56	0.3%
24	South Carolina	339	1.6%	50	Vermont	52	0.2%
25	Maryland	309	1.4%	51	District of Columbia	29	0.1%
25	Mississippi	304	1.4%				
					U.S. Total	21,647	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C8. 1985 U.S. VOC Emissions by State (kilotonnes)

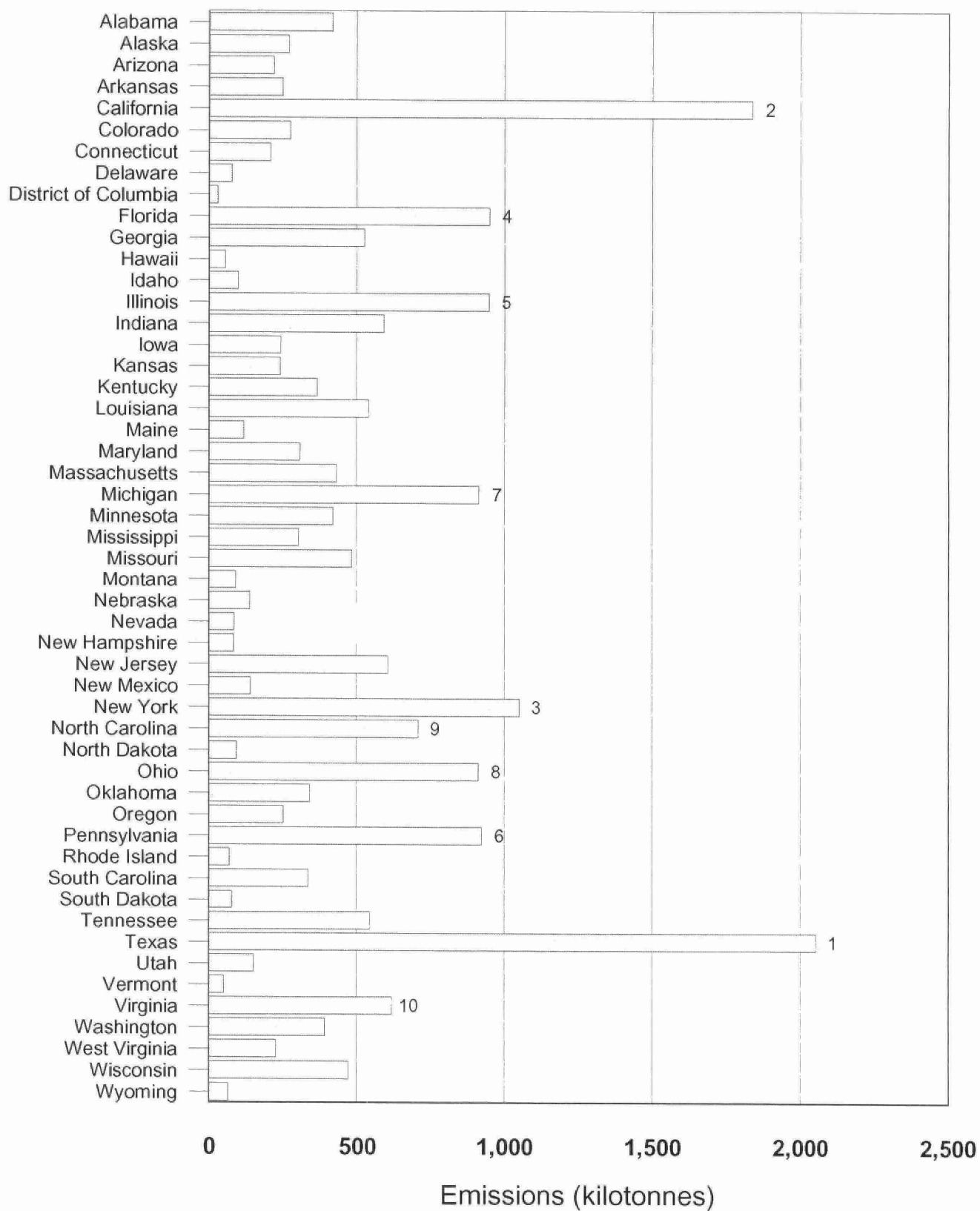


Table C9. 1985 U.S. CO Emissions by State (kilotonnes)

RANK	STATE	CO	% of U.S.	RANK	STATE	CO	% of U.S.
1	California	8,579	8.7%	27	Oregon	1,340	1.4%
2	Texas	7,634	7.7%	28	Arizona	1,121	1.1%
3	Florida	4,913	5.0%	29	Iowa	1,120	1.1%
4	New York	4,518	4.6%	30	Mississippi	1,095	1.1%
5	Michigan	4,265	4.3%	31	Arkansas	1,074	1.1%
6	Ohio	4,262	4.3%	32	Kansas	1,073	1.1%
7	Pennsylvania	4,144	4.2%	33	Connecticut	1,037	1.1%
8	Illinois	4,048	4.1%	34	Utah	997	1.0%
9	Indiana	2,850	2.9%	35	New Mexico	979	1.0%
10	North Carolina	2,820	2.9%	36	West Virginia	974	1.0%
11	Georgia	2,758	2.8%	37	Alaska	830	0.8%
12	Virginia	2,518	2.6%	38	Nebraska	639	0.6%
13	Washington	2,392	2.4%	39	Maine	601	0.6%
14	New Jersey	2,357	2.4%	40	Nevada	587	0.6%
15	Louisiana	2,344	2.4%	41	Idaho	536	0.5%
16	Missouri	2,220	2.3%	42	Montana	496	0.5%
17	Wisconsin	2,201	2.2%	43	New Hampshire	445	0.5%
18	Tennessee	2,195	2.2%	44	South Dakota	352	0.4%
19	Massachusetts	2,034	2.1%	45	Wyoming	347	0.4%
20	Alabama	2,017	2.0%	46	North Dakota	343	0.3%
21	Colorado	1,968	2.0%	47	Hawaii	327	0.3%
22	Minnesota	1,953	2.0%	48	Vermont	294	0.3%
23	Maryland	1,635	1.7%	49	Delaware	294	0.3%
24	Kentucky	1,602	1.6%	50	Rhode Island	293	0.3%
25	Oklahoma	1,597	1.6%	51	District of Columbia	148	0.2%
25	South Carolina	1,404	1.4%				
					U.S. Total	98,571	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C9. 1985 U.S. CO Emissions by State (kilotonnes)

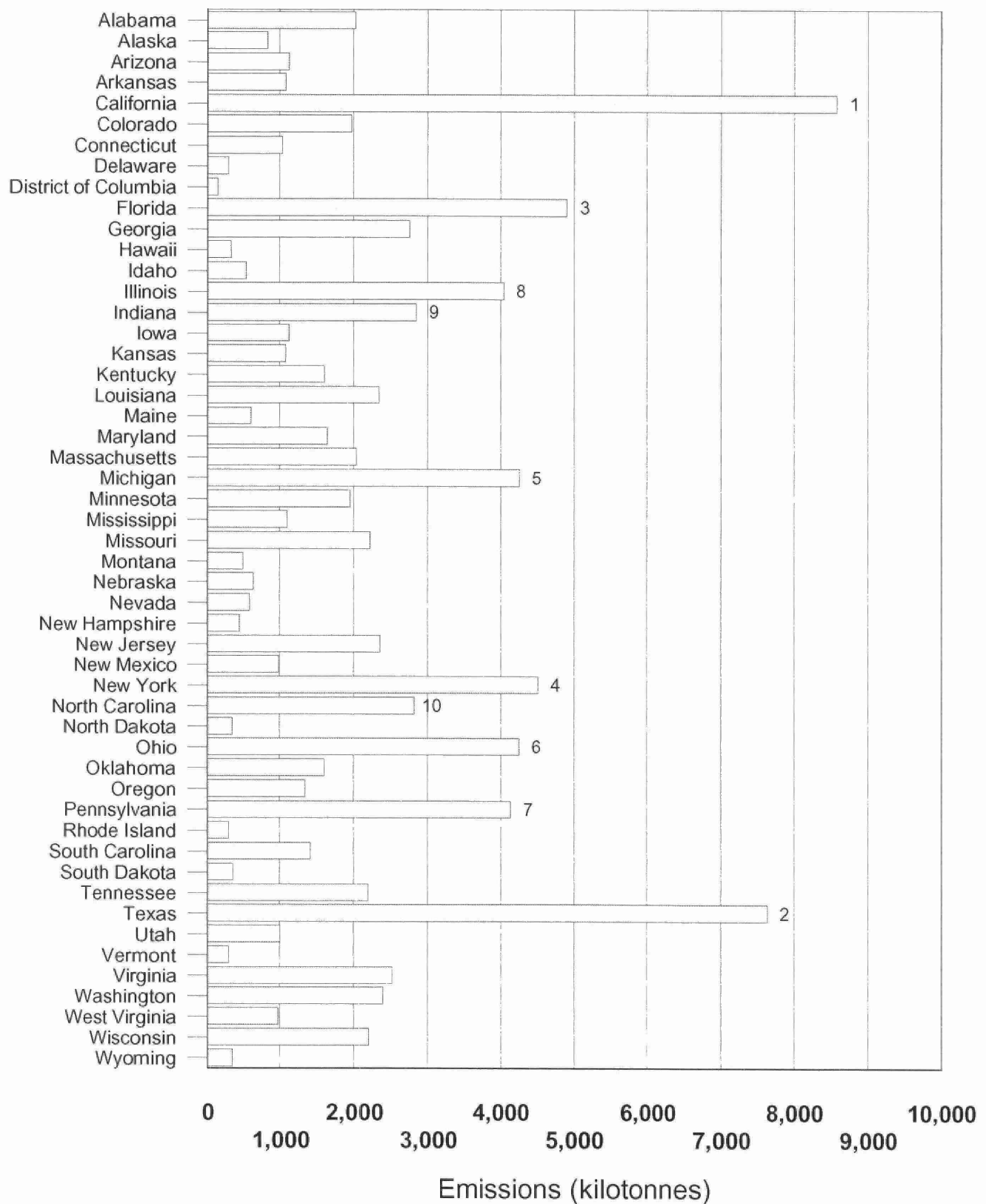


Table C10. 1985 U.S. PM10 Emissions by State (kilotonnes)

RANK	STATE	PM10	% of U.S.	RANK	STATE	PM10	% of U.S.
1	Texas	262	7.9%	27	Oklahoma	48	1.4%
2	California	193	5.8%	28	Mississippi	45	1.4%
3	Missouri	144	4.3%	29	Arizona	42	1.3%
4	North Carolina	139	4.2%	30	Maryland	41	1.2%
5	Pennsylvania	138	4.2%	31	Iowa	39	1.2%
6	Illinois	134	4.0%	32	Massachusetts	34	1.0%
7	Tennessee	127	3.8%	33	New Jersey	33	1.0%
8	Michigan	123	3.7%	34	Colorado	31	0.9%
9	Florida	119	3.6%	35	Montana	31	0.9%
10	Ohio	119	3.6%	36	Idaho	28	0.8%
11	Indiana	117	3.5%	37	Maine	27	0.8%
12	New York	109	3.3%	38	Utah	19	0.6%
13	Minnesota	105	3.2%	39	Nebraska	18	0.5%
14	Virginia	97	2.9%	40	Nevada	16	0.5%
15	Washington	94	2.8%	41	Wyoming	16	0.5%
16	Georgia	86	2.6%	42	Connecticut	16	0.5%
17	Kentucky	80	2.4%	43	North Dakota	14	0.4%
18	Arkansas	78	2.3%	44	New Hampshire	14	0.4%
19	Alabama	75	2.3%	45	Alaska	13	0.4%
20	Louisiana	73	2.2%	46	Vermont	11	0.3%
21	Wisconsin	68	2.1%	47	South Dakota	11	0.3%
22	Oregon	67	2.0%	48	Delaware	10	0.3%
23	West Virginia	60	1.8%	49	Rhode Island	4	0.1%
24	South Carolina	51	1.5%	50	Hawaii	3	0.1%
25	Kansas	50	1.5%	51	District of Columbia	1	0.0%
25	New Mexico	48	1.5%				
					U.S. Total	3,321	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C10. 1985 U.S. PM10 Emissions by State (kilotonnes)

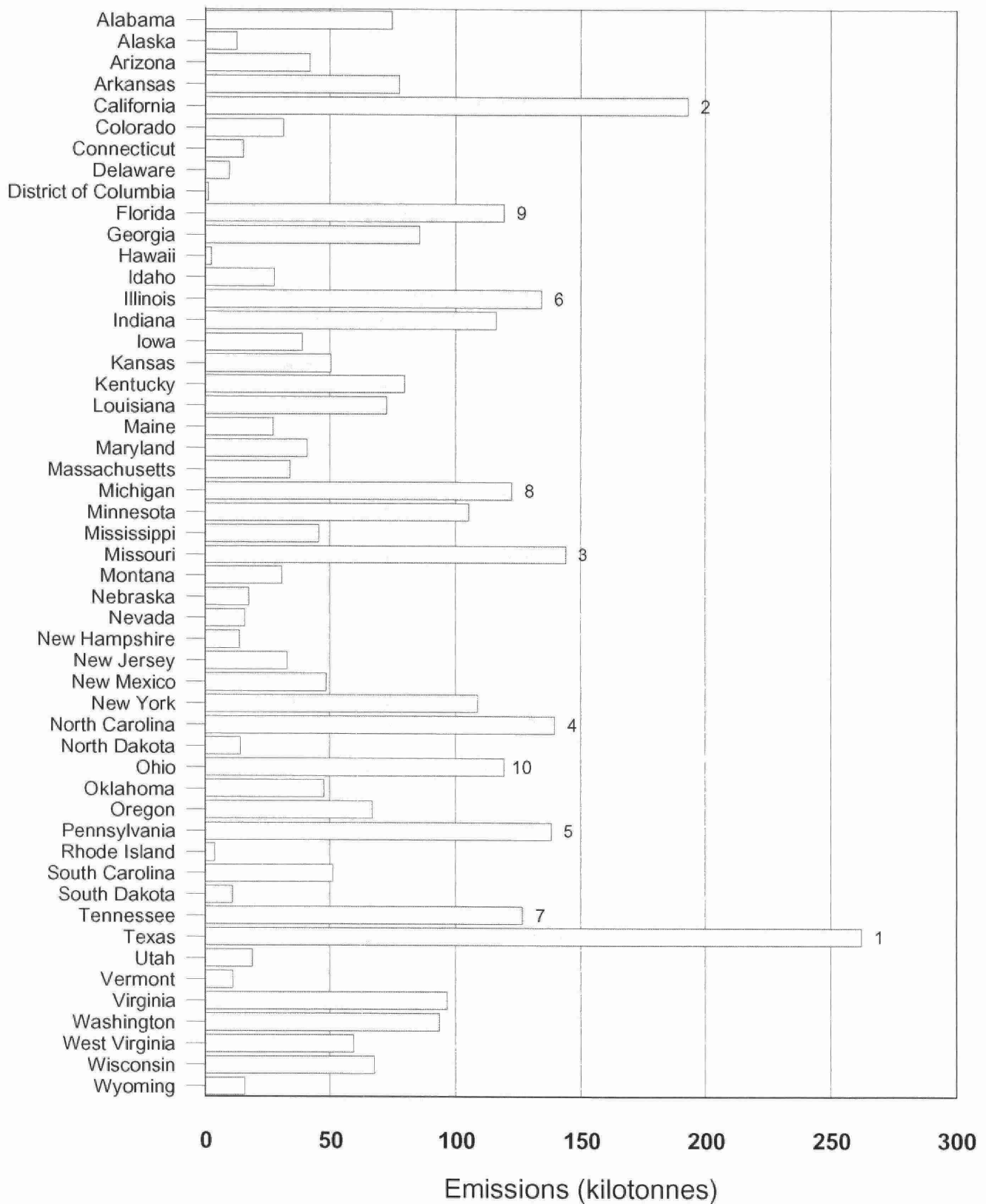


Table C11. 1990 U.S. SO2 Emissions by State (kilotonnes)

RANK	STATE	SO2	% of U.S.	RANK	STATE	SO2	% of U.S.
1	Ohio	2,483	11.6%	27	California	190	0.9%
2	Indiana	1,776	8.3%	28	Arizona	187	0.9%
3	Pennsylvania	1,378	6.4%	29	New Mexico	163	0.8%
4	Illinois	1,145	5.3%	30	Kansas	139	0.6%
5	Texas	979	4.6%	31	Minnesota	139	0.6%
6	Tennessee	978	4.6%	32	Washington	135	0.6%
7	West Virginia	975	4.5%	33	Wyoming	129	0.6%
8	Kentucky	939	4.4%	34	New Hampshire	116	0.5%
9	Georgia	907	4.2%	35	Colorado	113	0.5%
10	Missouri	880	4.1%	36	Arkansas	109	0.5%
11	New York	788	3.7%	37	Utah	100	0.5%
12	Florida	749	3.5%	38	Delaware	91	0.4%
13	Alabama	679	3.2%	39	Connecticut	89	0.4%
14	Michigan	660	3.1%	40	Maine	89	0.4%
15	North Carolina	443	2.1%	41	Nebraska	78	0.4%
16	Wisconsin	440	2.0%	42	Oregon	70	0.3%
17	Virginia	436	2.0%	43	Montana	70	0.3%
18	Maryland	396	1.8%	44	Nevada	64	0.3%
19	Louisiana	387	1.8%	45	South Dakota	48	0.2%
20	Massachusetts	326	1.5%	46	Hawaii	47	0.2%
21	New Jersey	282	1.3%	47	Idaho	37	0.2%
22	Iowa	270	1.3%	48	Rhode Island	14	0.1%
23	South Carolina	266	1.2%	49	Vermont	13	0.1%
24	Mississippi	251	1.2%	50	District of Columbia	11	0.1%
25	North Dakota	214	1.0%	51	Alaska	10	0.0%
25	Oklahoma	194	0.9%				
					U.S. Total	21,470	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C11. 1990 U.S. SO₂ Emissions by State (kilotonnes)

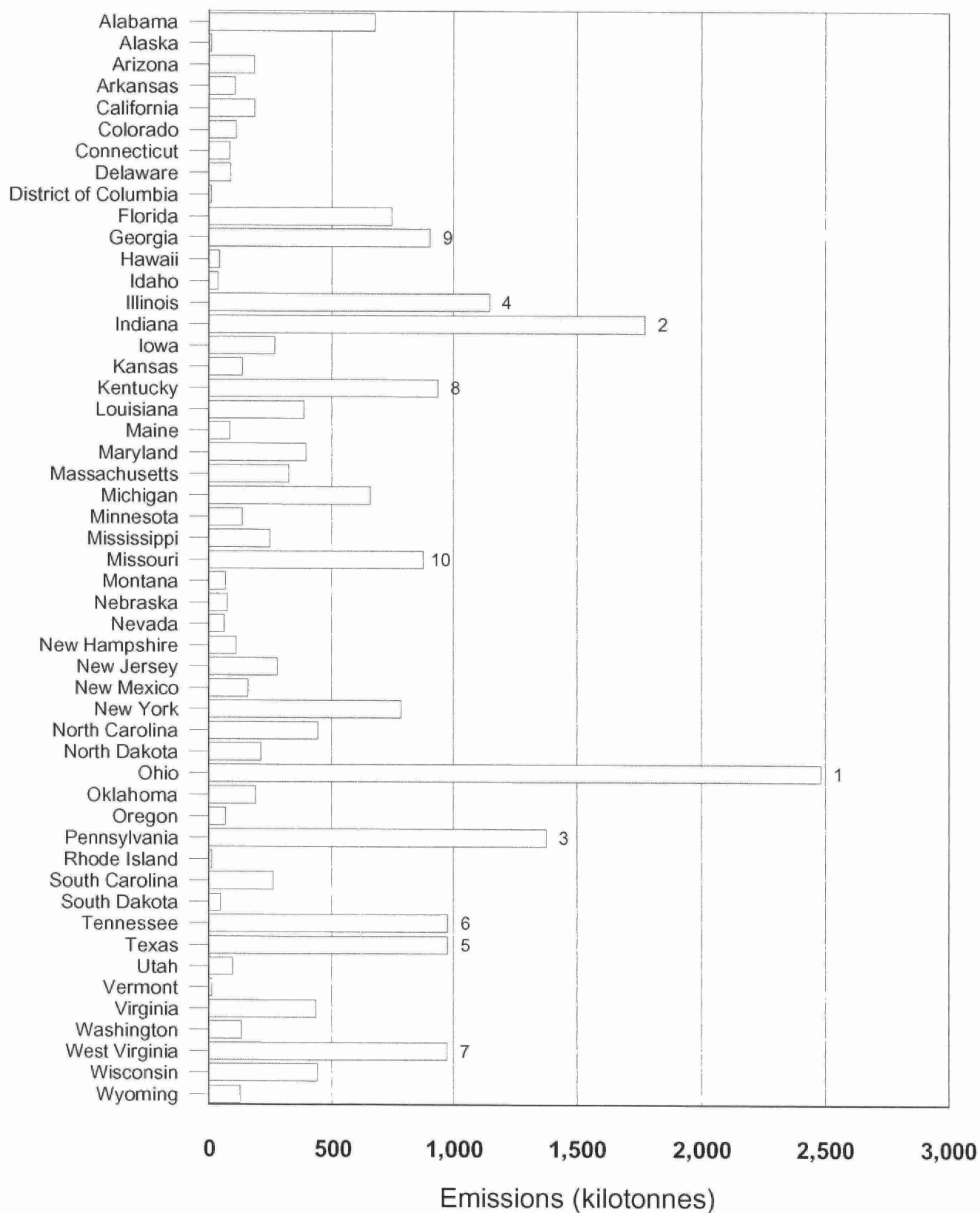


Table C12. 1990 U.S. NOx Emissions by State (kilotonnes)

RANK	STATE	NOx	% of U.S.	RANK	STATE	NOx	% of U.S.
1	Texas	1,856	8.6%	27	Massachusetts	314	1.5%
2	California	1,432	6.6%	28	Washington	314	1.5%
3	Ohio	1,054	4.9%	29	Colorado	306	1.4%
4	Pennsylvania	980	4.5%	30	Iowa	292	1.4%
5	Illinois	841	3.9%	31	Mississippi	275	1.3%
6	Indiana	825	3.8%	32	New Mexico	243	1.1%
7	Michigan	811	3.8%	33	Wyoming	222	1.0%
8	Florida	799	3.7%	34	Oregon	214	1.0%
9	New York	772	3.6%	35	Arkansas	210	1.0%
10	Louisiana	758	3.5%	36	North Dakota	207	1.0%
11	Tennessee	662	3.1%	37	Utah	186	0.9%
12	Kentucky	615	2.8%	38	Nebraska	182	0.8%
13	Georgia	598	2.8%	39	Connecticut	148	0.7%
14	North Carolina	518	2.4%	40	Montana	131	0.6%
15	West Virginia	517	2.4%	41	Nevada	127	0.6%
16	Virginia	513	2.4%	42	Maine	109	0.5%
17	New Jersey	495	2.3%	43	South Dakota	95	0.4%
18	Alabama	490	2.3%	44	Delaware	94	0.4%
19	Missouri	462	2.1%	45	New Hampshire	82	0.4%
20	Oklahoma	410	1.9%	46	Idaho	82	0.4%
21	Kansas	405	1.9%	47	Alaska	63	0.3%
22	Minnesota	383	1.8%	48	Hawaii	57	0.3%
23	Wisconsin	381	1.8%	49	Vermont	41	0.2%
24	Arizona	325	1.5%	50	Rhode Island	35	0.2%
25	Maryland	324	1.5%	51	District of Columbia	17	0.1%
25	South Carolina	317	1.5%				
					U.S. Total	21,590	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C12. 1990 U.S. NOx Emissions by State (kilotonnes)

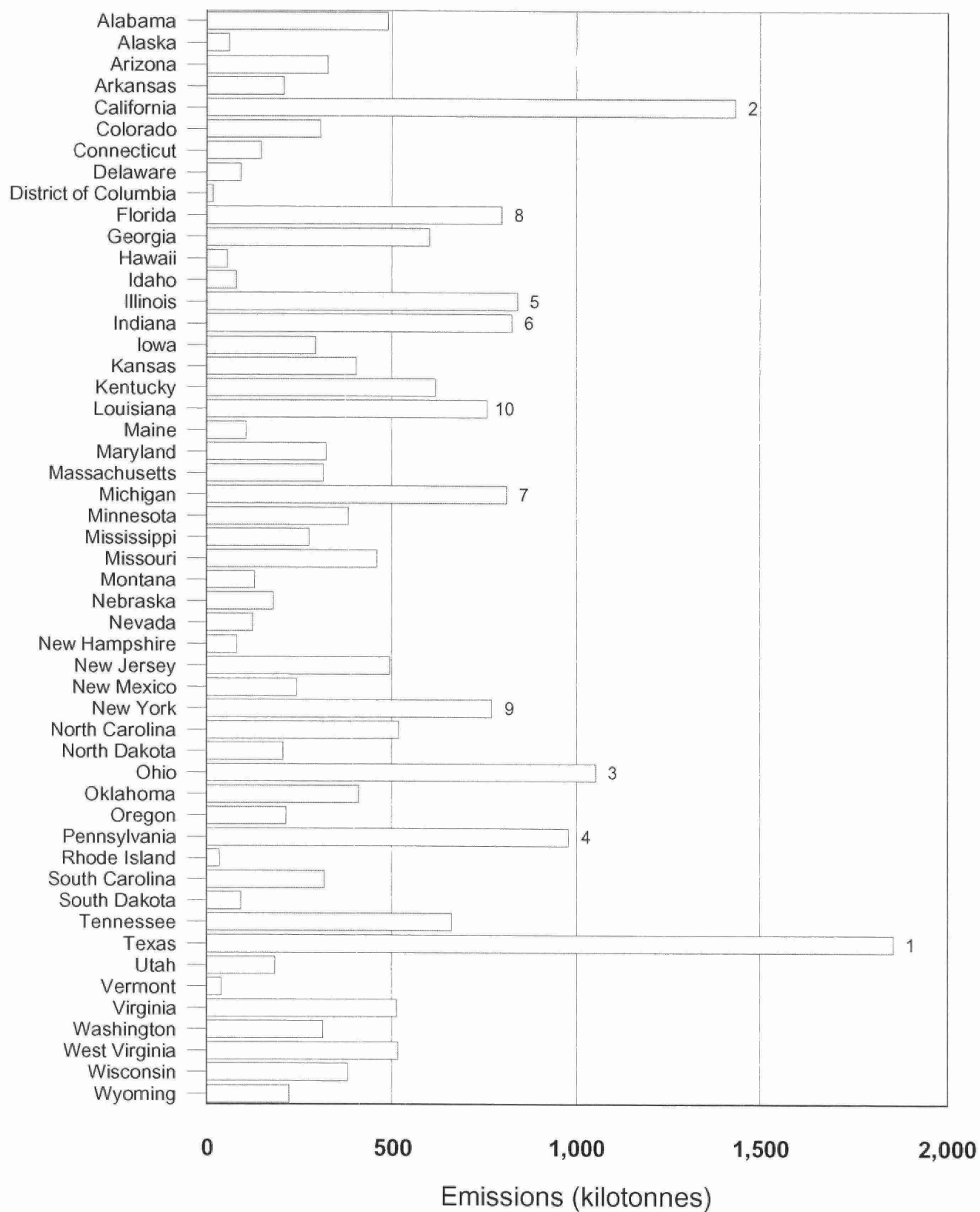


Table C13. 1990 U.S. VOC Emissions by State (kilotonnes)

RANK	STATE	VOC	% of U.S.	RANK	STATE	VOC	% of U.S.
1	California	1,726	9.5%	27	Maryland	247	1.4%
2	Texas	1,397	7.7%	28	Alaska	243	1.3%
3	New York	910	5.0%	29	Colorado	237	1.3%
4	Florida	804	4.4%	30	Kansas	230	1.3%
5	Michigan	797	4.4%	31	Oregon	216	1.2%
6	Ohio	778	4.3%	32	Iowa	216	1.2%
7	Pennsylvania	743	4.1%	33	Arkansas	205	1.1%
8	Illinois	654	3.6%	34	West Virginia	182	1.0%
9	North Carolina	562	3.1%	35	Connecticut	179	1.0%
10	Virginia	520	2.9%	36	Utah	133	0.7%
11	Tennessee	516	2.8%	37	Nebraska	132	0.7%
12	Indiana	494	2.7%	38	Maine	124	0.7%
13	New Jersey	493	2.7%	39	New Mexico	123	0.7%
14	Georgia	464	2.6%	40	Nevada	88	0.5%
15	Louisiana	420	2.3%	41	North Dakota	84	0.5%
16	Missouri	384	2.1%	42	Idaho	84	0.5%
17	Minnesota	382	2.1%	43	Montana	84	0.5%
18	Washington	361	2.0%	44	New Hampshire	76	0.4%
19	Kentucky	358	2.0%	45	South Dakota	67	0.4%
20	Wisconsin	358	2.0%	46	Wyoming	60	0.3%
21	Alabama	354	2.0%	47	Rhode Island	57	0.3%
22	South Carolina	329	1.8%	48	Delaware	56	0.3%
23	Massachusetts	291	1.6%	49	Hawaii	50	0.3%
24	Oklahoma	285	1.6%	50	Vermont	44	0.2%
25	Mississippi	275	1.5%	51	District of Columbia	20	0.1%
25	Arizona	247	1.4%				
					U.S. Total	18,136	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C13. 1990 U.S. VOC Emissions by State (kilotonnes)

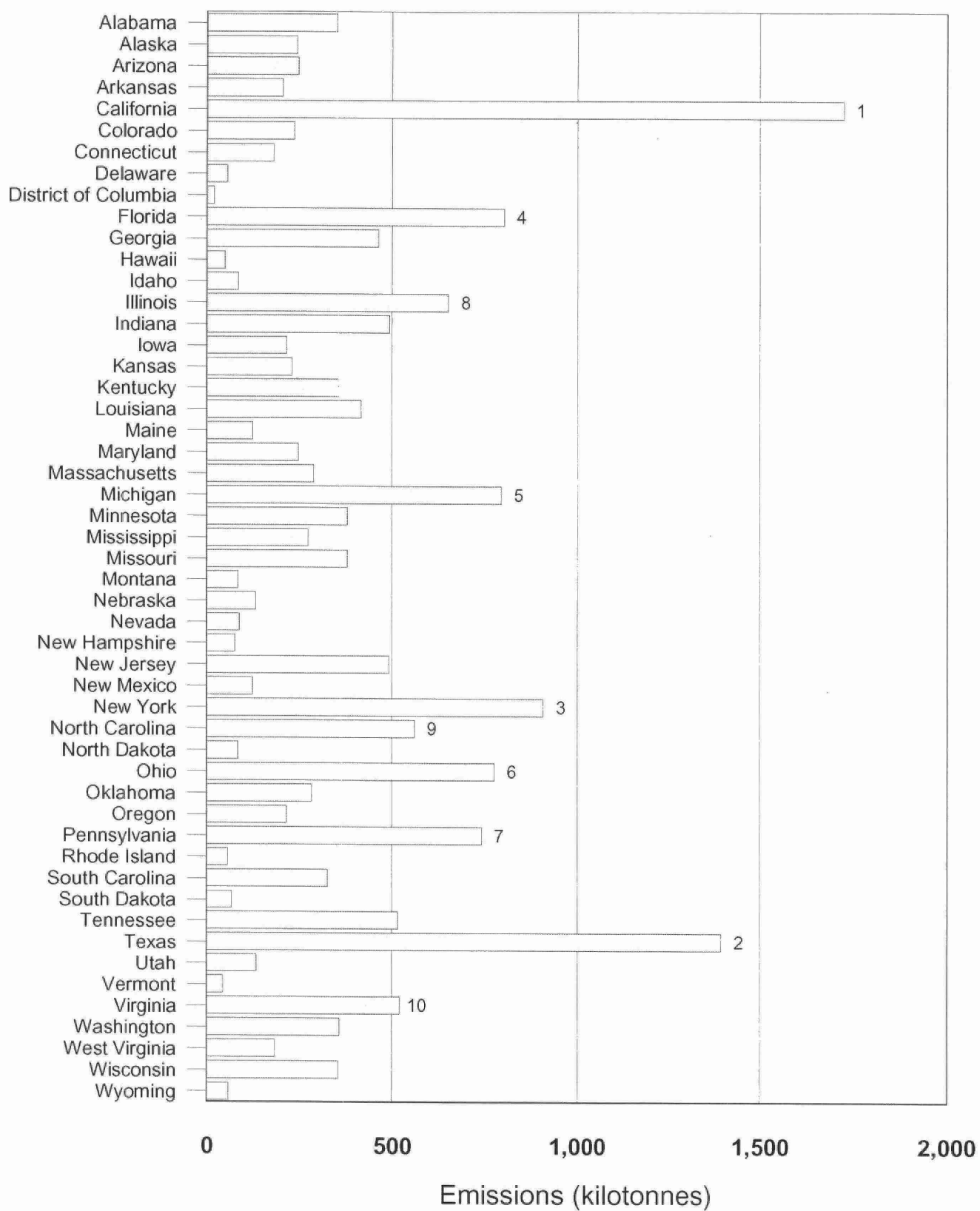


Table C14. 1990 U.S. CO Emissions by State (kilotonnes)

RANK	STATE	CO	% of U.S.	RANK	STATE	CO	% of U.S.
1	California	7,839	9.8%	27	Arizona	1,187	1.5%
2	Texas	5,560	7.0%	28	Oregon	1,164	1.5%
3	Florida	3,989	5.0%	29	Mississippi	966	1.2%
4	Ohio	3,787	4.7%	30	Iowa	938	1.2%
5	Pennsylvania	3,711	4.6%	31	Kansas	938	1.2%
6	New York	3,563	4.5%	32	Arkansas	901	1.1%
7	Michigan	3,200	4.0%	33	Connecticut	821	1.0%
8	Illinois	2,847	3.6%	34	Alaska	783	1.0%
9	Georgia	2,401	3.0%	35	Utah	774	1.0%
10	Virginia	2,199	2.8%	36	New Mexico	769	1.0%
11	North Carolina	2,139	2.7%	37	West Virginia	762	1.0%
12	Indiana	2,100	2.6%	38	Maine	619	0.8%
13	Washington	2,023	2.5%	39	Nebraska	565	0.7%
14	Tennessee	1,873	2.3%	40	Nevada	465	0.6%
15	Louisiana	1,773	2.2%	41	Idaho	440	0.6%
16	Minnesota	1,690	2.1%	42	Montana	409	0.5%
17	New Jersey	1,671	2.1%	43	New Hampshire	395	0.5%
18	Alabama	1,662	2.1%	44	Hawaii	304	0.4%
19	Missouri	1,614	2.0%	45	North Dakota	292	0.4%
20	Wisconsin	1,524	1.9%	46	South Dakota	292	0.4%
21	Massachusetts	1,340	1.7%	47	Rhode Island	260	0.3%
22	Maryland	1,336	1.7%	48	Wyoming	251	0.3%
23	Colorado	1,332	1.7%	49	Delaware	247	0.3%
24	Kentucky	1,292	1.6%	50	Vermont	247	0.3%
25	South Carolina	1,279	1.6%	51	District of Columbia	93	0.1%
25	Oklahoma	1,205	1.5%				
					U.S. Total	79,831	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C14. 1990 U.S. CO Emissions by State (kilotonnes)

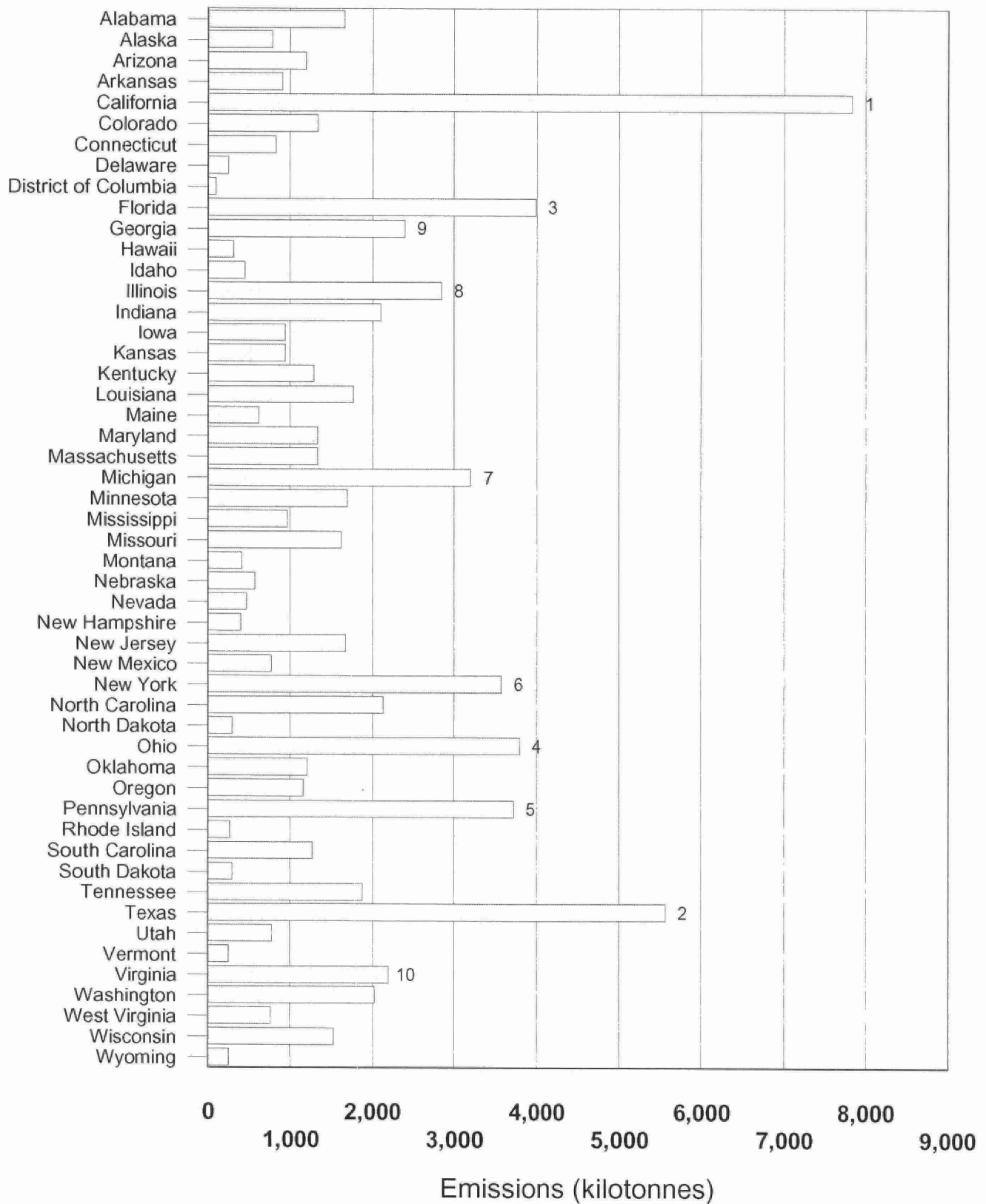


Table C15. 1990 U.S. PM10 Emissions by State (kilotonnes)

RANK	STATE	PM10	% of U.S.	RANK	STATE	PM10	% of U.S.
1	New York	230	7.6%	27	South Carolina	43	1.4%
2	Texas	209	6.9%	28	New Jersey	42	1.4%
3	California	172	5.7%	29	Arizona	41	1.4%
4	Illinois	155	5.1%	30	West Virginia	38	1.3%
5	Indiana	117	3.9%	31	Mississippi	38	1.2%
6	Pennsylvania	113	3.7%	32	Nebraska	33	1.1%
7	Ohio	108	3.6%	33	Iowa	31	1.0%
8	Michigan	104	3.4%	34	Montana	31	1.0%
9	Tennessee	98	3.2%	35	Massachusetts	29	0.9%
10	Maine	92	3.0%	36	Idaho	28	0.9%
11	Minnesota	83	2.8%	37	Maryland	27	0.9%
12	Missouri	83	2.7%	38	New Mexico	26	0.9%
13	North Carolina	82	2.7%	39	Connecticut	22	0.7%
14	Georgia	80	2.6%	40	Nevada	22	0.7%
15	Alabama	79	2.6%	41	Utah	17	0.6%
16	Virginia	75	2.5%	42	Alaska	16	0.5%
17	Florida	74	2.4%	43	North Dakota	15	0.5%
18	Wisconsin	66	2.2%	44	Wyoming	14	0.4%
19	Louisiana	65	2.2%	45	New Hampshire	12	0.4%
20	Oregon	61	2.0%	46	South Dakota	10	0.3%
21	Washington	61	2.0%	47	Delaware	8	0.3%
22	Kentucky	60	2.0%	48	Vermont	8	0.3%
23	Kansas	57	1.9%	49	Hawaii	7	0.2%
24	Arkansas	52	1.7%	50	Rhode Island	5	0.2%
25	Oklahoma	46	1.5%	51	District of Columbia	1	0.0%
25	Colorado	45	1.5%				
					U.S. Total	3,030	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C15. 1990 U.S. PM10 Emissions by State (kilotonnes)

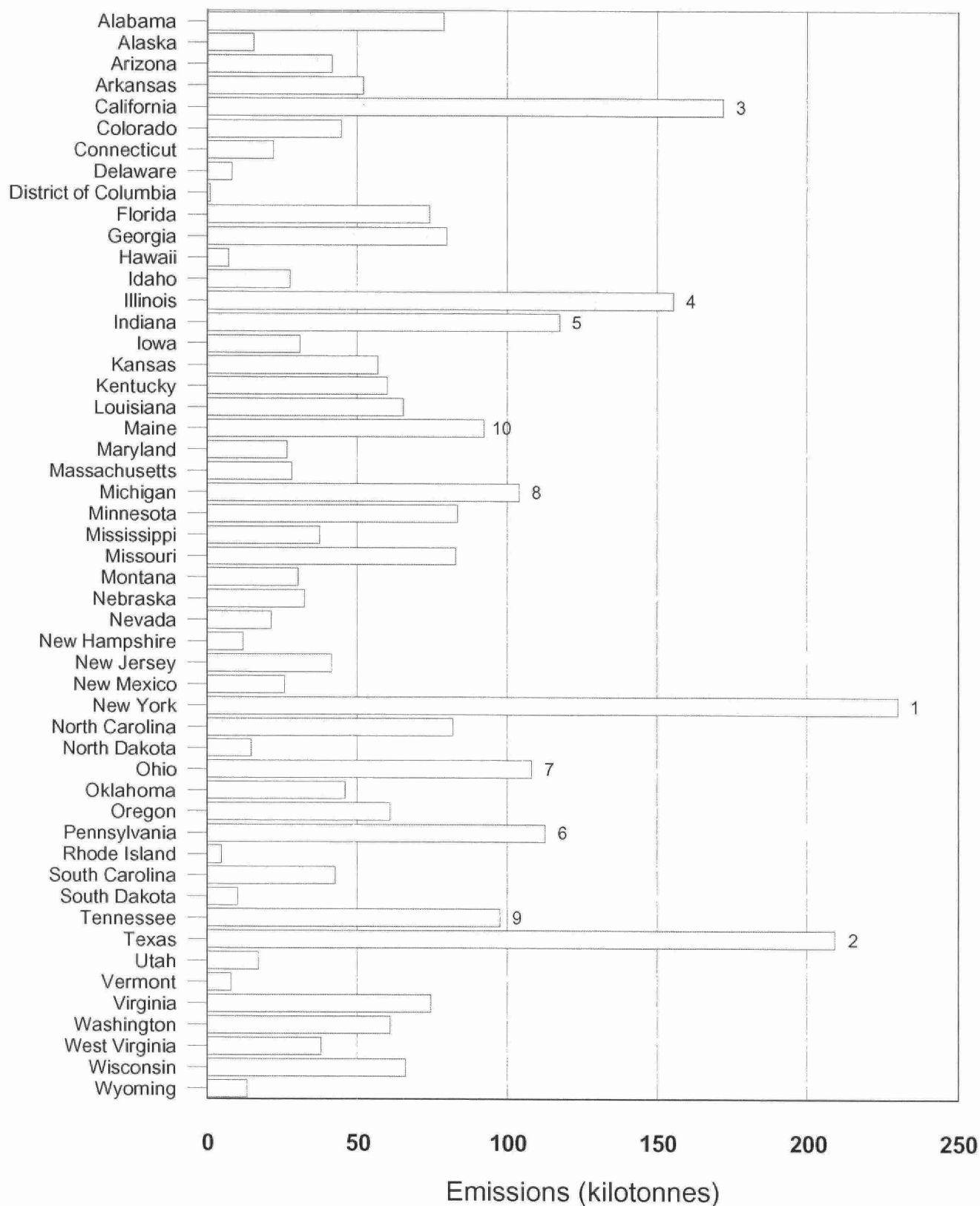


Table C16. 1995 U.S. SO2 Emissions by State (kilotonnes)

RANK	STATE	SO2	% of U.S.	RANK	STATE	SO2	% of U.S.
1	Ohio	1,548	9.0%	27	Arizona	211	1.2%
2	Indiana	1,247	7.2%	28	New Mexico	173	1.0%
3	Pennsylvania	1,208	7.0%	29	Wyoming	162	0.9%
4	Texas	942	5.5%	30	California	162	0.9%
5	Illinois	871	5.0%	31	Kansas	153	0.9%
6	Kentucky	729	4.2%	32	Minnesota	146	0.8%
7	Tennessee	715	4.1%	33	New Hampshire	135	0.8%
8	Florida	709	4.1%	34	Washington	125	0.7%
9	Alabama	674	3.9%	35	Arkansas	121	0.7%
10	West Virginia	634	3.7%	36	Colorado	120	0.7%
11	New York	597	3.5%	37	Nebraska	92	0.5%
12	Georgia	542	3.1%	38	Delaware	89	0.5%
13	Michigan	538	3.1%	39	Maine	74	0.4%
14	Missouri	483	2.8%	40	Utah	72	0.4%
15	North Carolina	465	2.7%	41	Montana	69	0.4%
16	Virginia	454	2.6%	42	Nevada	60	0.3%
17	Wisconsin	331	1.9%	43	South Dakota	57	0.3%
18	Louisiana	313	1.8%	44	Connecticut	56	0.3%
19	North Dakota	302	1.8%	45	Oregon	47	0.3%
20	Maryland	298	1.7%	46	Idaho	35	0.2%
21	Iowa	278	1.6%	47	Hawaii	33	0.2%
22	South Carolina	258	1.5%	48	Vermont	16	0.1%
23	New Jersey	236	1.4%	49	Rhode Island	11	0.1%
24	Massachusetts	217	1.3%	50	Alaska	10	0.1%
25	Mississippi	217	1.3%	51	District of Columbia	10	0.1%
25	Oklahoma	216	1.3%				
					U.S. Total	17,261	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C16. 1995 U.S. SO₂ Emissions by State (kilotonnes)

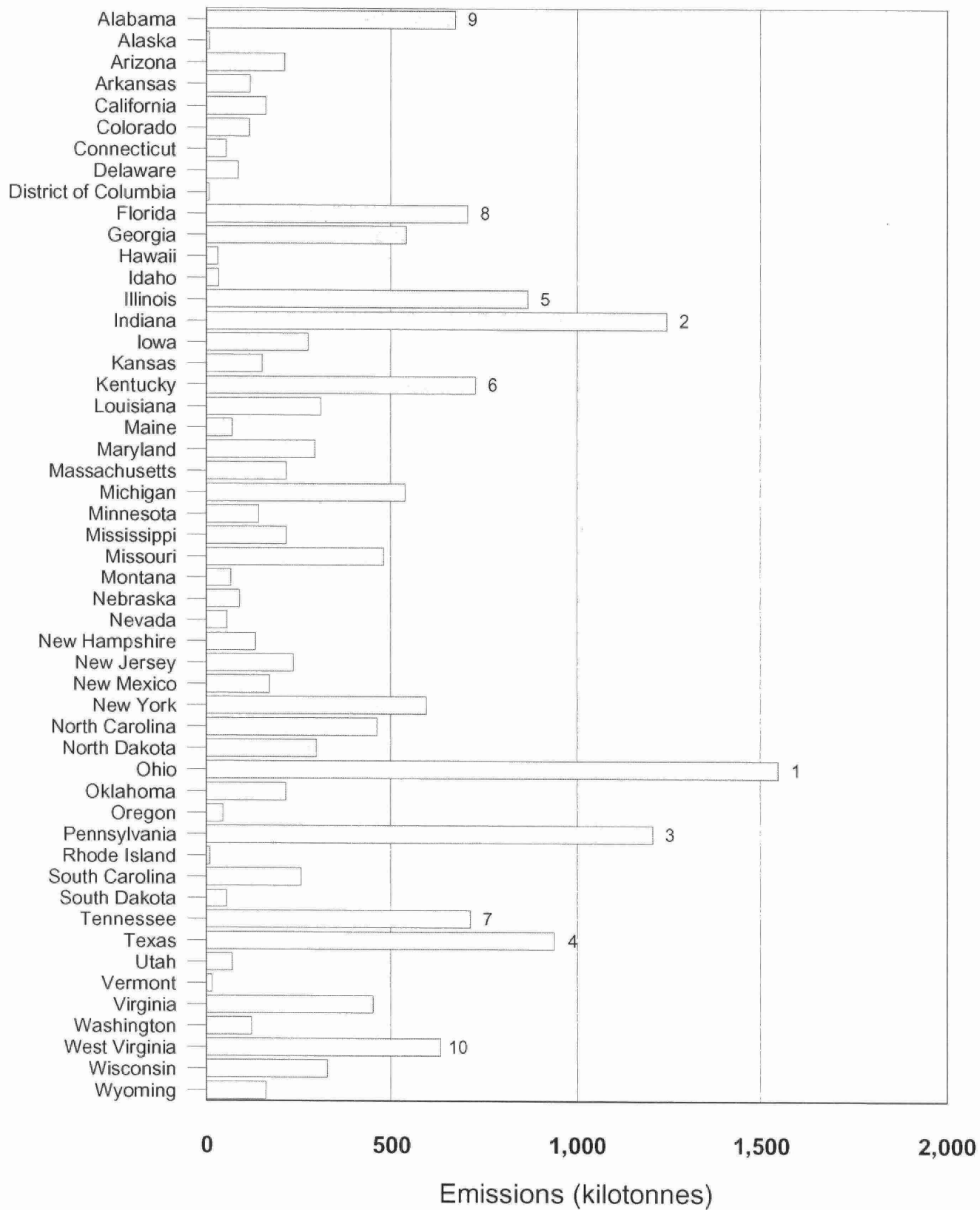


Table C17. 1995 U.S. NO_x Emissions by State (kilotonnes)

RANK	STATE	NO _x	% of U.S.	RANK	STATE	NO _x	% of U.S.
1	Texas	1,795	8.0%	27	Washington	327	1.5%
2	California	1,463	6.6%	28	Iowa	322	1.4%
3	Ohio	1,127	5.1%	29	Maryland	300	1.3%
4	Illinois	980	4.4%	30	Mississippi	286	1.3%
5	Pennsylvania	931	4.2%	31	Massachusetts	268	1.2%
6	Florida	912	4.1%	32	Wyoming	250	1.1%
7	Indiana	844	3.8%	33	New Mexico	245	1.1%
8	Michigan	809	3.6%	34	Arkansas	241	1.1%
9	Tennessee	772	3.5%	35	North Dakota	235	1.1%
10	Kentucky	675	3.0%	36	Nebraska	221	1.0%
11	Louisiana	663	3.0%	37	Oregon	215	1.0%
12	New York	663	3.0%	38	Utah	194	0.9%
13	Georgia	612	2.7%	39	Montana	141	0.6%
14	North Carolina	600	2.7%	40	Connecticut	139	0.6%
15	Virginia	560	2.5%	41	Nevada	131	0.6%
16	Alabama	558	2.5%	42	South Dakota	100	0.4%
17	Missouri	473	2.1%	43	Maine	95	0.4%
18	West Virginia	461	2.1%	44	Idaho	91	0.4%
19	Kansas	460	2.1%	45	New Hampshire	84	0.4%
20	Wisconsin	440	2.0%	46	Delaware	76	0.3%
21	Oklahoma	439	2.0%	47	Hawaii	55	0.2%
22	New Jersey	434	1.9%	48	Alaska	54	0.2%
23	Minnesota	432	1.9%	49	Vermont	44	0.2%
24	Arizona	360	1.6%	50	Rhode Island	31	0.1%
25	Colorado	355	1.6%	51	District of Columbia	17	0.1%
25	South Carolina	331	1.5%				
					U.S. Total	22,312	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C17. 1995 U.S. NO_x Emissions by State (kilotonnes)

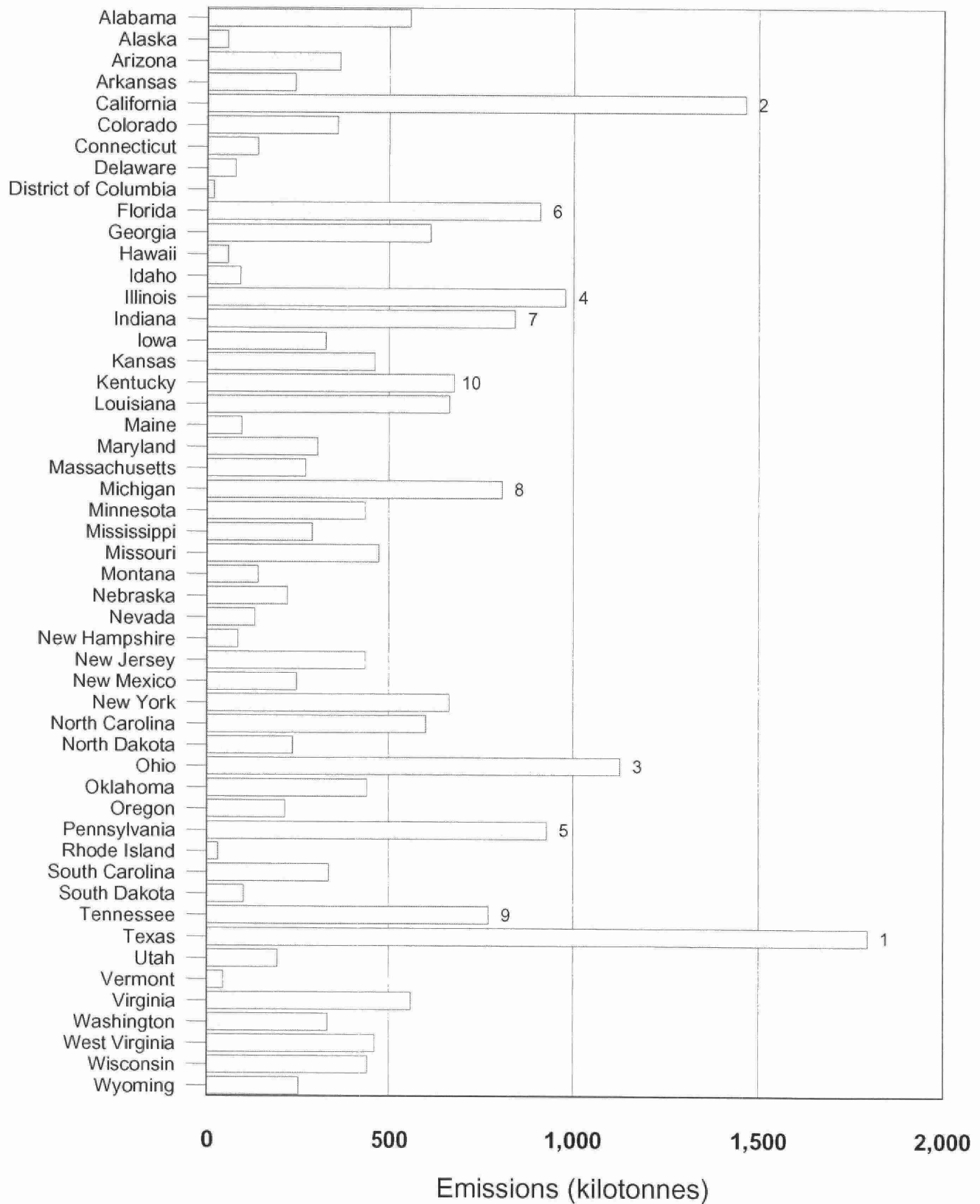


Table C18. 1995 U.S. VOC Emissions by State (kilotonnes)

RANK	STATE	VOC	% of U.S.	RANK	STATE	VOC	% of U.S.
1	California	1,655	9.0%	27	Arizona	244	1.3%
2	Texas	1,457	7.9%	28	Alaska	240	1.3%
3	Florida	808	4.4%	29	Maryland	236	1.3%
4	Ohio	792	4.3%	30	Kansas	235	1.3%
5	New York	781	4.3%	31	Iowa	227	1.2%
6	Michigan	750	4.1%	32	Arkansas	220	1.2%
7	Pennsylvania	749	4.1%	33	Oregon	208	1.1%
8	Illinois	743	4.1%	34	West Virginia	176	1.0%
9	North Carolina	572	3.1%	35	Connecticut	172	0.9%
10	Indiana	548	3.0%	36	Nebraska	158	0.9%
11	Tennessee	540	2.9%	37	Utah	149	0.8%
12	Virginia	499	2.7%	38	New Mexico	130	0.7%
13	Georgia	497	2.7%	39	Maine	121	0.7%
14	New Jersey	468	2.6%	40	Nevada	96	0.5%
15	Washington	401	2.2%	41	Idaho	89	0.5%
16	Wisconsin	397	2.2%	42	North Dakota	87	0.5%
17	Louisiana	395	2.2%	43	Montana	86	0.5%
18	Alabama	394	2.1%	44	New Hampshire	75	0.4%
19	Missouri	392	2.1%	45	South Dakota	69	0.4%
20	Kentucky	383	2.1%	46	Wyoming	64	0.3%
21	Minnesota	373	2.0%	47	Delaware	53	0.3%
22	South Carolina	334	1.8%	48	Rhode Island	52	0.3%
23	Mississippi	288	1.6%	49	Hawaii	50	0.3%
24	Oklahoma	287	1.6%	50	Vermont	46	0.3%
25	Massachusetts	282	1.5%	51	District of Columbia	19	0.1%
25	Colorado	260	1.4%				
					U.S. Total	18,344	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C18. 1995 U.S. VOC Emissions by State (kilotonnes)

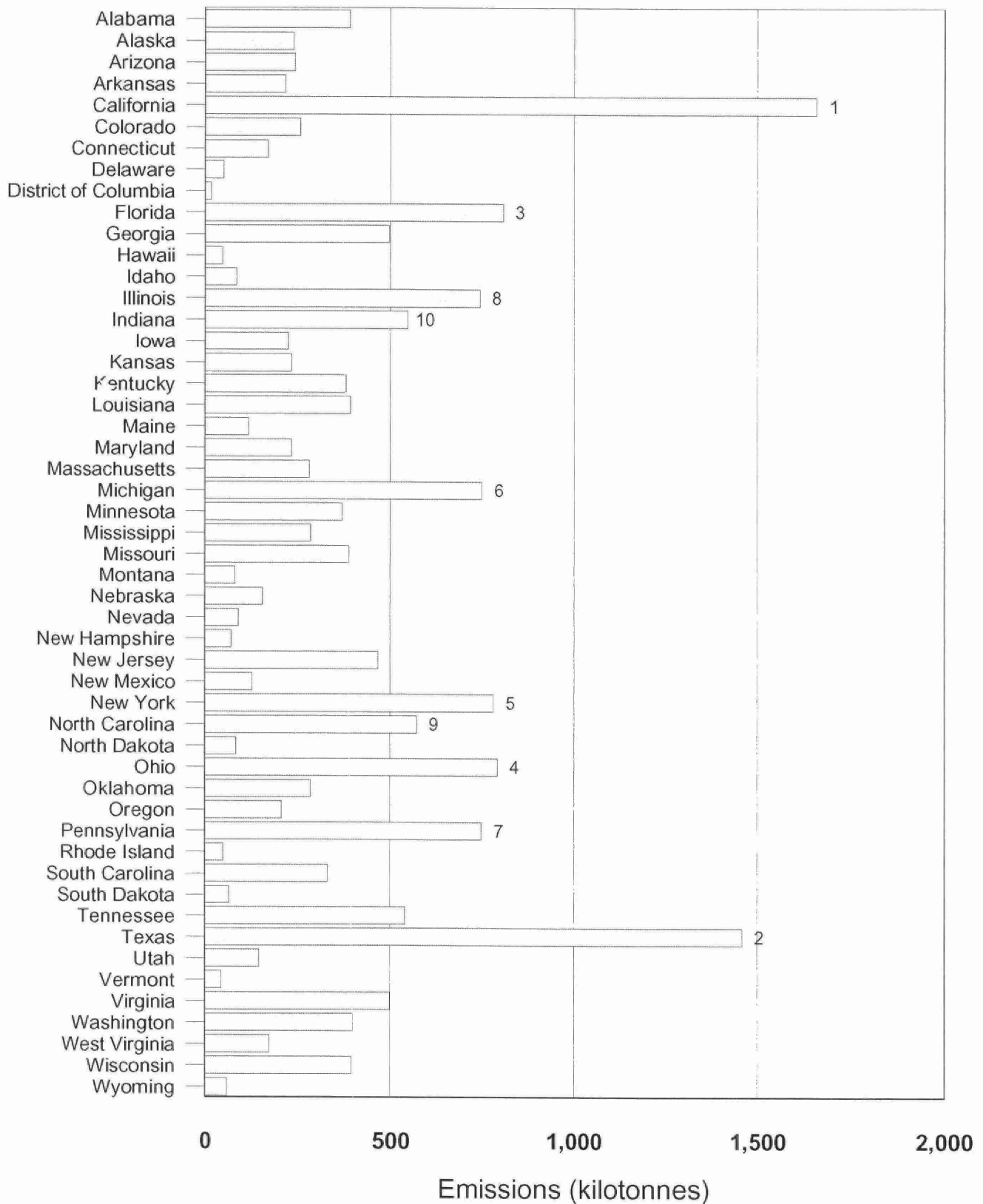


Table C19. 1995 U.S. CO Emissions by State (kilotonnes)

RANK	STATE	CO	% of U.S.	RANK	STATE	CO	% of U.S.
1	California	7,446	9.5%	27	Arizona	1,067	1.4%
2	Texas	5,135	6.6%	28	Mississippi	1,047	1.3%
3	Florida	4,287	5.5%	29	Oregon	1,017	1.3%
4	Ohio	4,164	5.3%	30	Iowa	991	1.3%
5	Pennsylvania	3,441	4.4%	31	Arkansas	991	1.3%
6	New York	3,128	4.0%	32	Kansas	952	1.2%
7	Michigan	2,996	3.8%	33	West Virginia	805	1.0%
8	Georgia	2,769	3.5%	34	Utah	794	1.0%
9	Illinois	2,765	3.5%	35	Alaska	782	1.0%
10	Indiana	2,373	3.0%	36	Connecticut	720	0.9%
11	North Carolina	2,212	2.8%	37	New Mexico	699	0.9%
12	Virginia	2,069	2.6%	38	Nebraska	601	0.8%
13	Tennessee	1,992	2.5%	39	Maine	582	0.7%
14	Alabama	1,818	2.3%	40	Idaho	465	0.6%
15	Washington	1,785	2.3%	41	Nevada	457	0.6%
16	Louisiana	1,659	2.1%	42	Montana	404	0.5%
17	Missouri	1,655	2.1%	43	New Hampshire	376	0.5%
18	Wisconsin	1,594	2.0%	44	Wyoming	318	0.4%
19	Minnesota	1,487	1.9%	45	Hawaii	306	0.4%
20	New Jersey	1,397	1.8%	46	North Dakota	305	0.4%
21	Kentucky	1,369	1.7%	47	South Dakota	296	0.4%
22	South Carolina	1,331	1.7%	48	Vermont	249	0.3%
23	Oklahoma	1,263	1.6%	49	Delaware	211	0.3%
24	Colorado	1,181	1.5%	50	Rhode Island	205	0.3%
25	Massachusetts	1,158	1.5%	51	District of Columbia	79	0.1%
25	Maryland	1,136	1.5%				
					U.S. Total	78,330	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C19. 1995 U.S. CO Emissions by State (kilotonnes)

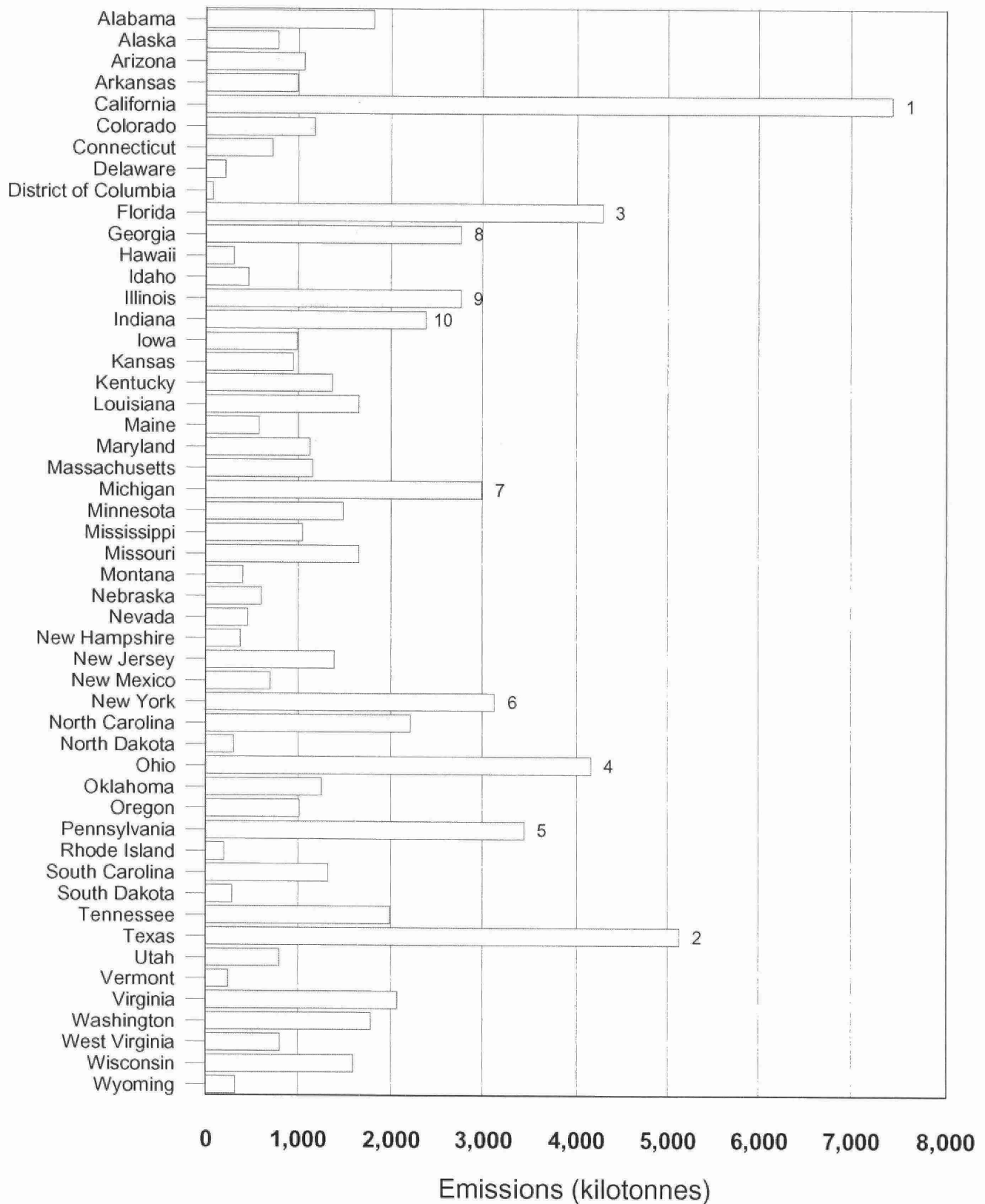


Table C20. 1995 U.S. PM10 Emissions by State (kilotonnes)

RANK	STATE	PM10	% of U.S.	RANK	STATE	PM10	% of U.S.
1	New York	204	7.3%	27	New Jersey	41	1.5%
2	California	147	5.3%	28	Mississippi	41	1.5%
3	Pennsylvania	125	4.5%	29	Oregon	39	1.4%
4	Illinois	125	4.5%	30	West Virginia	39	1.4%
5	Texas	124	4.4%	31	Colorado	37	1.3%
6	Indiana	118	4.2%	32	Wyoming	35	1.3%
7	Ohio	107	3.8%	33	Iowa	31	1.1%
8	Minnesota	103	3.7%	34	Nebraska	27	1.0%
9	Tennessee	97	3.5%	35	Massachusetts	26	0.9%
10	North Carolina	87	3.1%	36	Idaho	25	0.9%
11	Maine	86	3.1%	37	New Mexico	24	0.9%
12	Michigan	83	3.0%	38	Maryland	24	0.9%
13	Georgia	82	2.9%	39	Montana	24	0.8%
14	Missouri	81	2.9%	40	Utah	23	0.8%
15	Florida	80	2.9%	41	Nevada	22	0.8%
16	Virginia	76	2.7%	42	Alaska	14	0.5%
17	Kentucky	63	2.3%	43	Connecticut	14	0.5%
18	Alabama	60	2.2%	44	North Dakota	14	0.5%
19	Arkansas	55	2.0%	45	New Hampshire	13	0.5%
20	Kansas	54	1.9%	46	South Dakota	9	0.3%
21	Washington	54	1.9%	47	Vermont	8	0.3%
22	Wisconsin	51	1.8%	48	Delaware	8	0.3%
23	Arizona	47	1.7%	49	Hawaii	5	0.2%
24	Louisiana	47	1.7%	50	Rhode Island	4	0.2%
25	Oklahoma	46	1.7%	51	District of Columbia	1	0.0%
25	South Carolina	45	1.6%				
					U.S. Total	2,797	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C20. 1995 U.S. PM10 Emissions by State (kilotonnes)

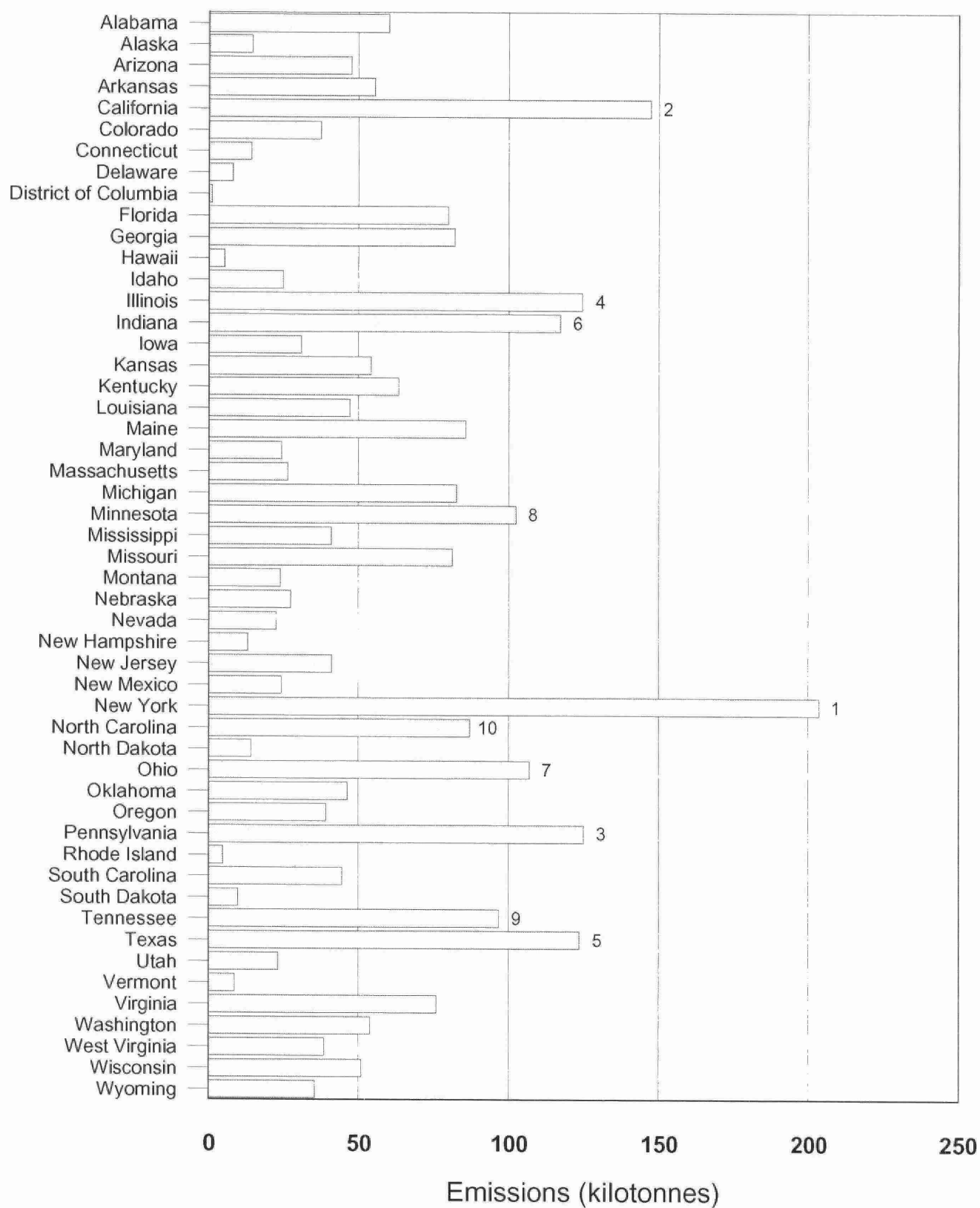


Table C21. 1999 U.S. SO2 Emissions by State (kilotonnes)

RANK	STATE	SO2	% of U.S.	RANK	STATE	SO2	% of U.S.
1	Ohio	1,641	9.6%	27	New Mexico	166	1.0%
2	Pennsylvania	1,127	6.6%	28	Wyoming	158	0.9%
3	Indiana	1,028	6.0%	29	Minnesota	150	0.9%
4	Texas	997	5.8%	30	Arkansas	150	0.9%
5	Illinois	957	5.6%	31	Washington	149	0.9%
6	Florida	837	4.9%	32	Oklahoma	146	0.8%
7	West Virginia	735	4.3%	33	Kansas	145	0.8%
8	Kentucky	713	4.2%	34	New Hampshire	137	0.8%
9	Alabama	662	3.9%	35	California	121	0.7%
10	Tennessee	622	3.6%	36	Colorado	115	0.7%
11	Georgia	575	3.4%	37	Nebraska	85	0.5%
12	New York	572	3.3%	38	Utah	79	0.5%
13	North Carolina	551	3.2%	39	Delaware	75	0.4%
14	Michigan	518	3.0%	40	Nevada	59	0.3%
15	Louisiana	423	2.5%	41	Hawaii	56	0.3%
16	Missouri	396	2.3%	42	Oregon	54	0.3%
17	Virginia	340	2.0%	43	Montana	53	0.3%
18	Wisconsin	328	1.9%	44	Connecticut	53	0.3%
19	Maryland	300	1.8%	45	Maine	52	0.3%
20	North Dakota	290	1.7%	46	South Dakota	50	0.3%
21	South Carolina	274	1.6%	47	Idaho	34	0.2%
22	Iowa	251	1.5%	48	Vermont	15	0.1%
23	New Jersey	241	1.4%	49	Rhode Island	11	0.1%
24	Mississippi	226	1.3%	50	Alaska	10	0.1%
25	Massachusetts	205	1.2%	51	District of Columbia	8	0.0%
25	Arizona	180	1.1%				
					U.S. Total	17,121	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C21. 1999 U.S. SO₂ Emissions by State (kilotonnes)

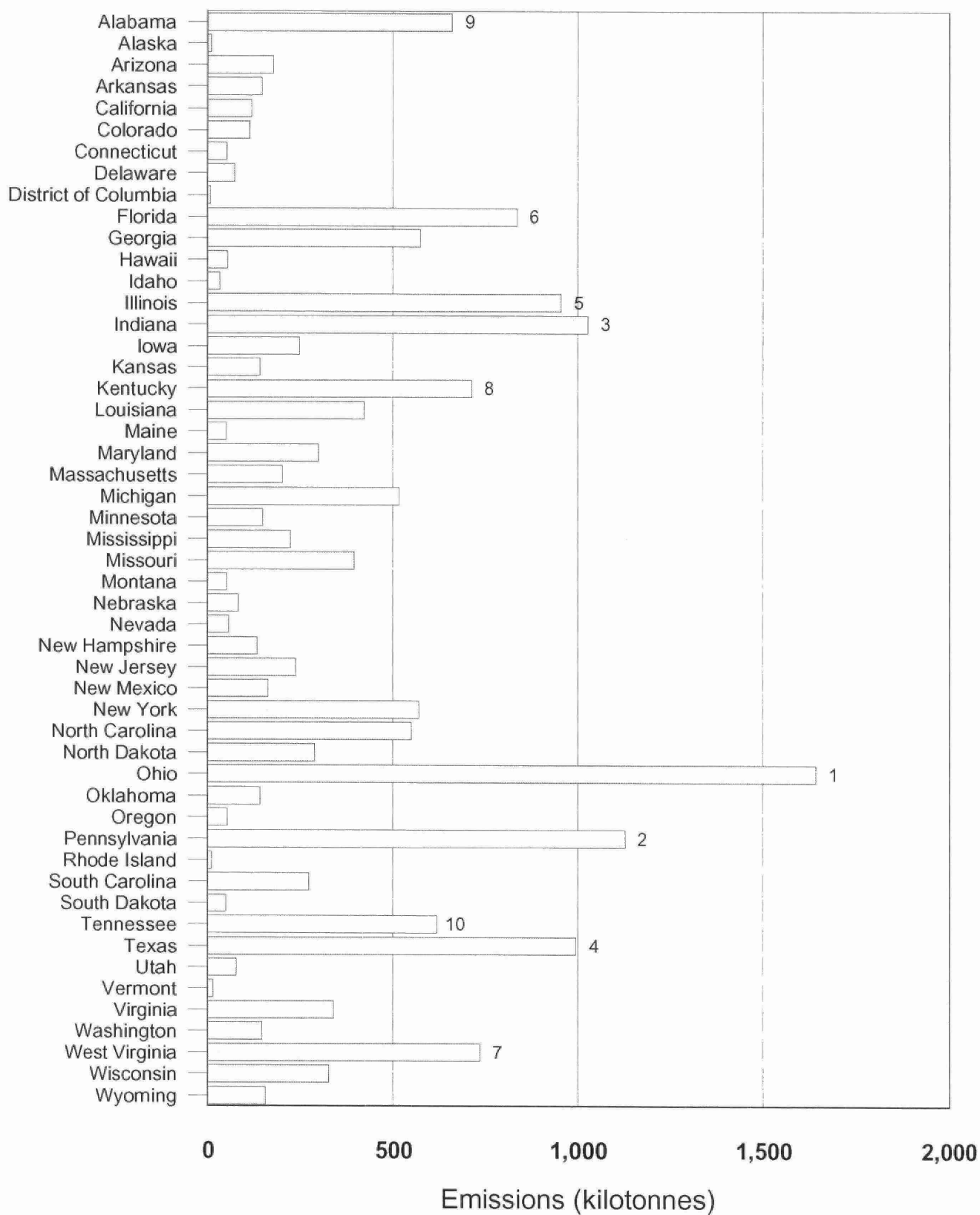


Table C22. 1999 U.S. NOx Emissions by State (kilotonnes)

RANK	STATE	NOx	% of U.S.	RANK	STATE	NOx	% of U.S.
1	Texas	2,020	8.9%	27	Washington	339	1.5%
2	California	1,363	6.0%	28	South Carolina	336	1.5%
3	Ohio	1,042	4.6%	29	Iowa	322	1.4%
4	Illinois	1,009	4.4%	30	Maryland	292	1.3%
5	Florida	990	4.4%	31	New Mexico	290	1.3%
6	Pennsylvania	853	3.7%	32	Massachusetts	287	1.3%
7	Louisiana	807	3.5%	33	Arkansas	279	1.2%
8	Indiana	780	3.4%	34	Utah	264	1.2%
9	Michigan	780	3.4%	35	Wyoming	249	1.1%
10	New York	734	3.2%	36	Oregon	227	1.0%
11	Tennessee	671	2.9%	37	Nebraska	222	1.0%
12	Georgia	659	2.9%	38	North Dakota	194	0.9%
13	Kentucky	631	2.8%	39	Montana	154	0.7%
14	North Carolina	603	2.7%	40	Nevada	147	0.6%
15	Alabama	562	2.5%	41	Connecticut	141	0.6%
16	Virginia	520	2.3%	42	South Dakota	106	0.5%
17	Missouri	486	2.1%	43	Idaho	95	0.4%
18	Wisconsin	460	2.0%	44	Maine	91	0.4%
19	West Virginia	457	2.0%	45	New Hampshire	77	0.3%
20	Kansas	456	2.0%	46	Hawaii	72	0.3%
21	New Jersey	450	2.0%	47	Delaware	65	0.3%
22	Minnesota	442	1.9%	48	Alaska	56	0.2%
23	Oklahoma	423	1.9%	49	Vermont	44	0.2%
24	Arizona	418	1.8%	50	Rhode Island	35	0.2%
25	Colorado	376	1.7%	51	District of Columbia	16	0.1%
25	Mississippi	357	1.6%				
					U.S. Total	22,748	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C22. 1999 U.S. NOx Emissions by State (kilotonnes)

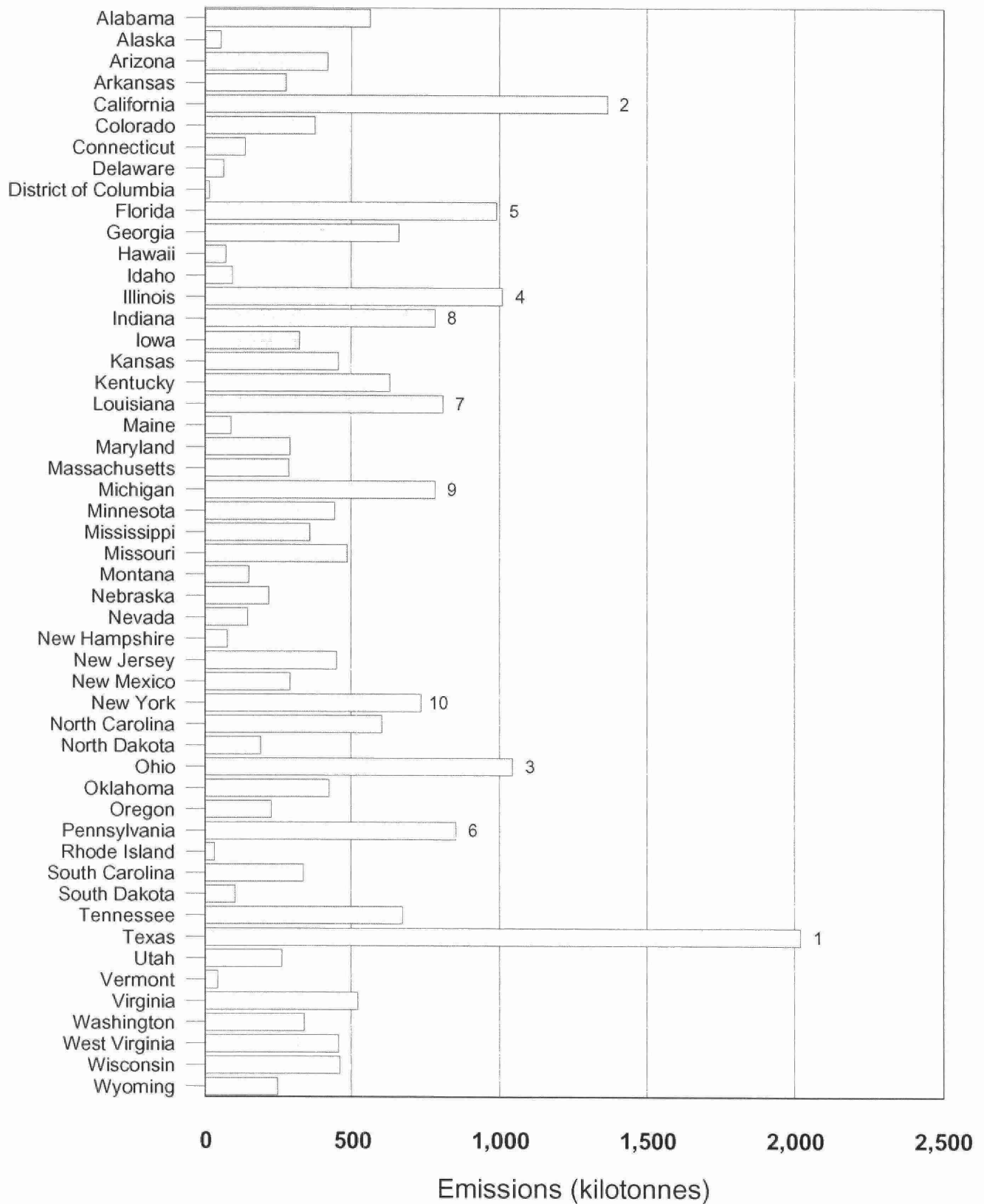


Table C23. 1999 U.S. VOC Emissions by State (kilotonnes)

RANK	STATE	VOC	% of U.S.	RANK	STATE	VOC	% of U.S.
1	Texas	1,255	7.9%	27	Massachusetts	245	1.5%
2	California	923	5.8%	28	Arizona	242	1.5%
3	Florida	802	5.1%	29	Oregon	239	1.5%
4	Michigan	718	4.5%	30	Arkansas	223	1.4%
5	Illinois	679	4.3%	31	Iowa	210	1.3%
6	New York	671	4.2%	32	Kansas	196	1.2%
7	Ohio	627	4.0%	33	Maryland	161	1.0%
8	Pennsylvania	561	3.5%	34	Connecticut	138	0.9%
9	North Carolina	514	3.2%	35	West Virginia	133	0.8%
10	Tennessee	492	3.1%	36	Nebraska	129	0.8%
11	Georgia	477	3.0%	37	Utah	129	0.8%
12	Virginia	448	2.8%	38	New Mexico	125	0.8%
13	Indiana	437	2.8%	39	Maine	121	0.8%
14	Wisconsin	391	2.5%	40	Idaho	98	0.6%
15	Alabama	383	2.4%	41	Nevada	93	0.6%
16	New Jersey	366	2.3%	42	Montana	86	0.5%
17	Minnesota	356	2.2%	43	North Dakota	85	0.5%
18	Louisiana	355	2.2%	44	New Hampshire	78	0.5%
19	Washington	338	2.1%	45	South Dakota	64	0.4%
20	Missouri	331	2.1%	46	Wyoming	61	0.4%
21	South Carolina	313	2.0%	47	Hawaii	49	0.3%
22	Kentucky	295	1.9%	48	Rhode Island	46	0.3%
23	Alaska	283	1.8%	49	Vermont	46	0.3%
24	Mississippi	268	1.7%	50	Delaware	41	0.3%
25	Colorado	253	1.6%	51	District of Columbia	16	0.1%
25	Oklahoma	247	1.6%				
					U.S. Total	15,836	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C23. 1999 U.S. VOC Emissions by State (kilotonnes)

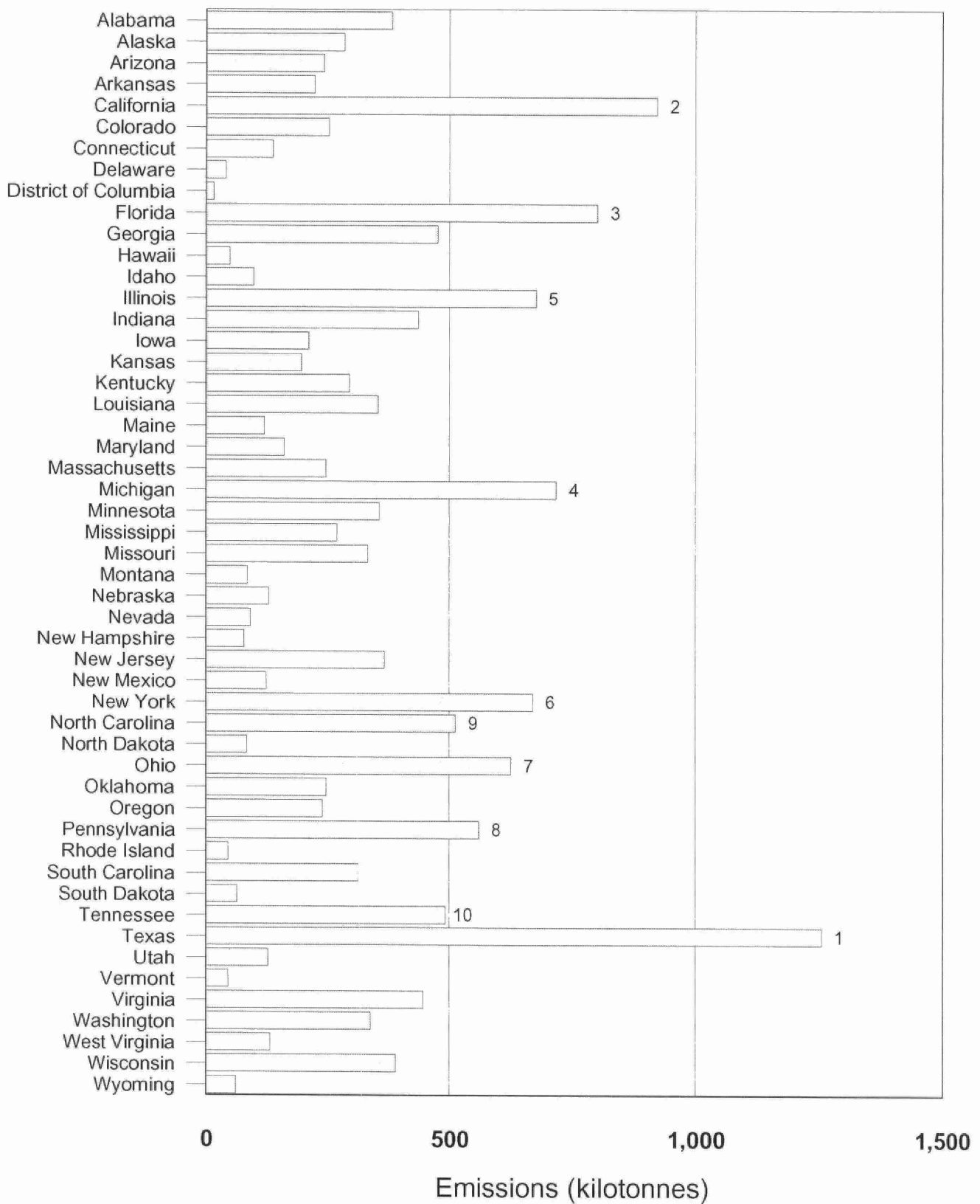


Table C24. 1999 U.S. CO Emissions by State (kilotonnes)

RANK	STATE	CO	% of U.S.	RANK	STATE	CO	% of U.S.
1	California	6,438	8.1%	27	Massachusetts	1,250	1.6%
2	Texas	5,332	6.7%	28	Mississippi	1,115	1.4%
3	Florida	4,689	5.9%	29	Maryland	1,086	1.4%
4	Ohio	3,836	4.8%	30	Arkansas	998	1.2%
5	New York	3,261	4.1%	31	Iowa	955	1.2%
6	Michigan	3,190	4.0%	32	Kansas	931	1.2%
7	Pennsylvania	3,006	3.8%	33	Connecticut	825	1.0%
8	Georgia	3,004	3.8%	34	Alaska	817	1.0%
9	Illinois	2,864	3.6%	35	Utah	724	0.9%
10	North Carolina	2,406	3.0%	36	New Mexico	711	0.9%
11	Indiana	2,301	2.9%	37	West Virginia	679	0.9%
12	Virginia	2,237	2.8%	38	Nebraska	579	0.7%
13	Tennessee	2,057	2.6%	39	Nevada	560	0.7%
14	Louisiana	1,933	2.4%	40	Maine	549	0.7%
15	Washington	1,927	2.4%	41	Idaho	503	0.6%
16	Alabama	1,918	2.4%	42	New Hampshire	393	0.5%
17	Missouri	1,656	2.1%	43	Montana	391	0.5%
18	Wisconsin	1,641	2.1%	44	Wyoming	323	0.4%
19	Minnesota	1,638	2.1%	45	Hawaii	300	0.4%
20	New Jersey	1,484	1.9%	46	North Dakota	275	0.3%
21	South Carolina	1,455	1.8%	47	South Dakota	260	0.3%
22	Oklahoma	1,406	1.8%	48	Vermont	248	0.3%
23	Kentucky	1,358	1.7%	49	Rhode Island	234	0.3%
24	Arizona	1,318	1.7%	50	Delaware	203	0.3%
25	Colorado	1,287	1.6%	51	District of Columbia	71	0.1%
25	Oregon	1,261	1.6%				
					U.S. Total	79,883	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C24. 1999 U.S. CO Emissions by State (kilotonnes)

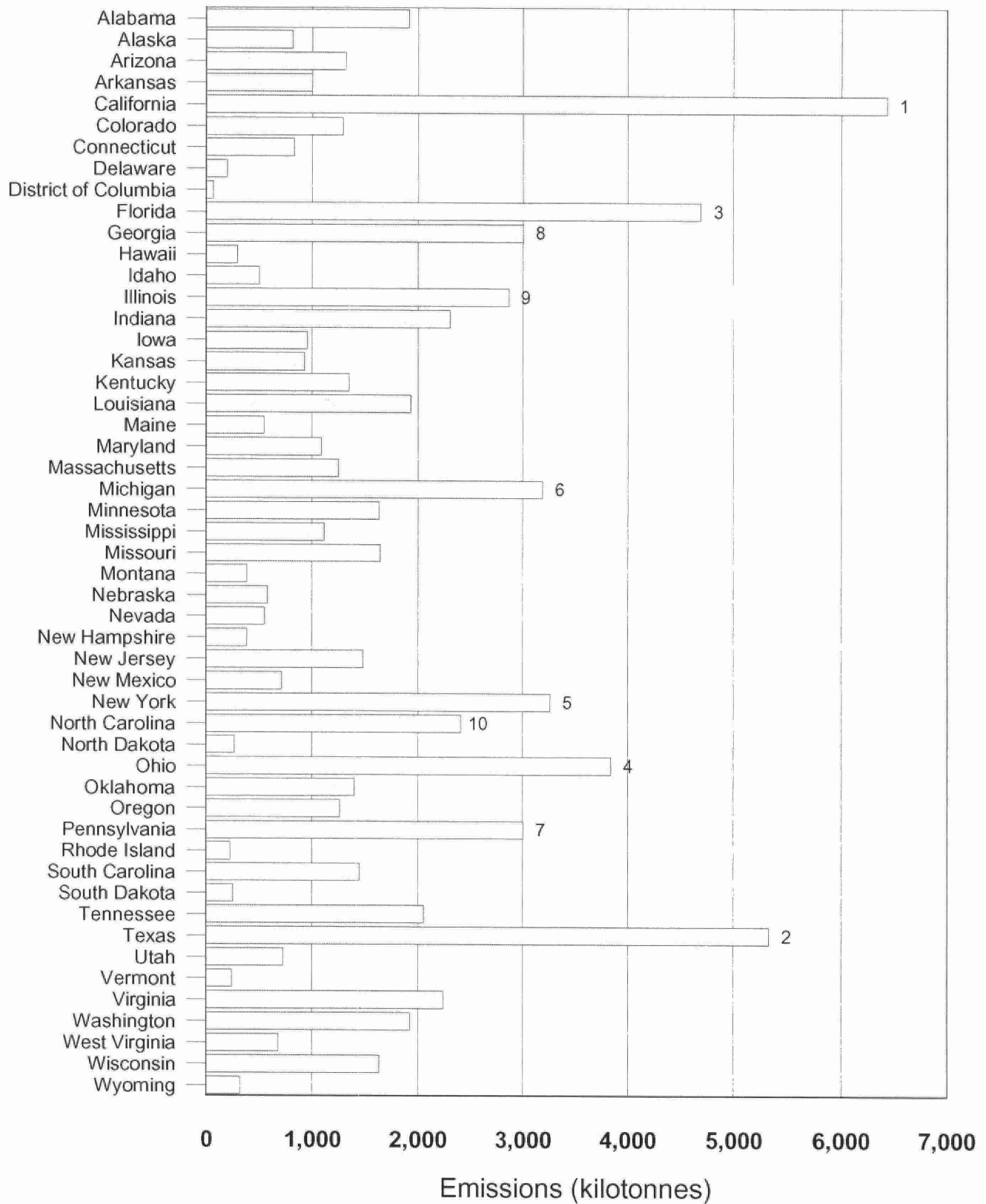


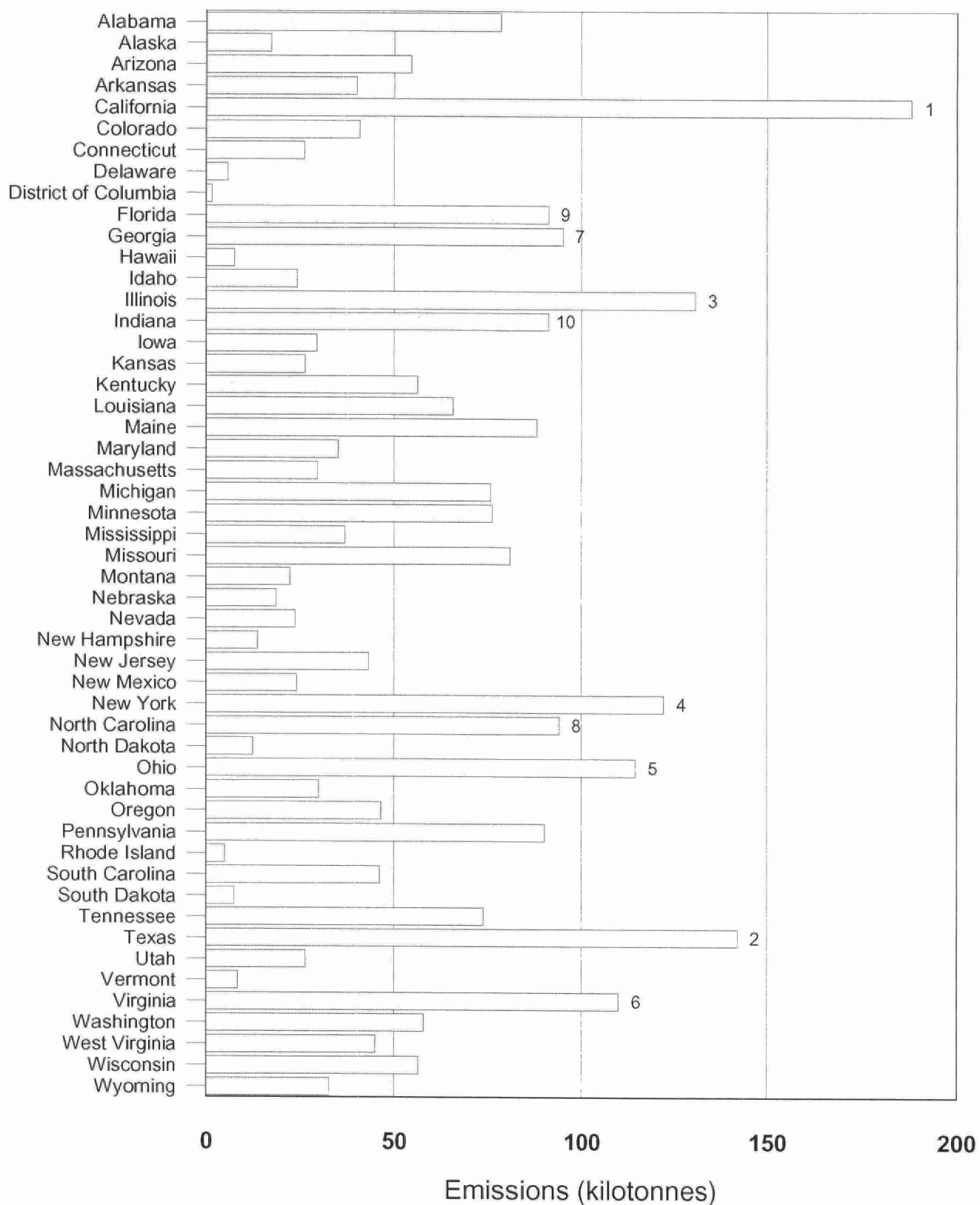
Table C25. 1999 U.S. PM10 Emissions by State (kilotonnes)

RANK	STATE	PM10	% of U.S.	RANK	STATE	PM10	% of U.S.
1	California	189	6.8%	27	Colorado	41	1.5%
2	Texas	142	5.1%	28	Arkansas	40	1.5%
3	Illinois	131	4.7%	29	Mississippi	37	1.3%
4	New York	122	4.4%	30	Maryland	35	1.3%
5	Ohio	115	4.1%	31	Wyoming	33	1.2%
6	Virginia	110	4.0%	32	Oklahoma	30	1.1%
7	Georgia	95	3.4%	33	Massachusetts	30	1.1%
8	North Carolina	94	3.4%	34	Iowa	30	1.1%
9	Florida	91	3.3%	35	Utah	26	1.0%
10	Indiana	91	3.3%	36	Kansas	26	1.0%
11	Pennsylvania	90	3.3%	37	Connecticut	26	0.9%
12	Maine	88	3.2%	38	Idaho	24	0.9%
13	Missouri	81	2.9%	39	New Mexico	24	0.9%
14	Alabama	78	2.8%	40	Nevada	24	0.9%
15	Minnesota	76	2.8%	41	Montana	22	0.8%
16	Michigan	76	2.7%	42	Nebraska	19	0.7%
17	Tennessee	74	2.7%	43	Alaska	17	0.6%
18	Louisiana	66	2.4%	44	New Hampshire	14	0.5%
19	Washington	58	2.1%	45	North Dakota	12	0.4%
20	Wisconsin	56	2.0%	46	Vermont	8	0.3%
21	Kentucky	56	2.0%	47	South Dakota	8	0.3%
22	Arizona	55	2.0%	48	Hawaii	8	0.3%
23	Oregon	47	1.7%	49	Delaware	6	0.2%
24	South Carolina	46	1.7%	50	Rhode Island	5	0.2%
25	West Virginia	45	1.6%	51	District of Columbia	2	0.1%
25	New Jersey	43	1.6%				
					U.S. Total	2,762	100%

Source: U.S. EPA's "National Emission Trends (NET)" in AirData database, October 5, 2001 version.

Note: Tier1 category "14-Miscellaneous" emissions are not included in the state totals. Components may not add up to totals due to rounding.

Figure C25. 1999 U.S. PM10 Emissions by State (kilotonnes)



This page is intentionally left blank.

**CANADA AND UNITED STATES
EMISSIONS**

Table D1. 1990 Canada and U.S. SO₂ Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	SO ₂	% of Can. + U.S.	RANK	PROVINCE/ STATE	SO ₂	% of Can. + U.S.
CANADA				CANADA			
1	Ontario	1,155	4.7%	7	British Columbia	101	0.4%
2	Alberta	567	2.3%	8	Saskatchewan	90	0.4%
3	Manitoba	509	2.1%	9	Newfoundland	66	0.3%
4	Quebec	395	1.6%	10	N.W.T.	15	0.1%
5	New Brunswick	185	0.7%	11	P.E.I.	4	0.0%
6	Nova Scotia	179	0.7%	12	Yukon	2	0.0%
U.S.				U.S.			
1	Ohio	2,483	10.0%	27	California	190	0.8%
2	Indiana	1,776	7.2%	28	Arizona	187	0.8%
3	Pennsylvania	1,378	5.6%	29	New Mexico	163	0.7%
4	Illinois	1,145	4.6%	30	Kansas	139	0.6%
5	Texas	979	4.0%	31	Minnesota	139	0.6%
6	Tennessee	978	4.0%	32	Washington	135	0.5%
7	West Virginia	975	3.9%	33	Wyoming	129	0.5%
8	Kentucky	939	3.8%	34	New Hampshire	116	0.5%
9	Georgia	907	3.7%	35	Colorado	113	0.5%
10	Missouri	880	3.6%	36	Arkansas	109	0.4%
11	New York	788	3.2%	37	Utah	100	0.4%
12	Florida	749	3.0%	38	Delaware	91	0.4%
13	Alabama	679	2.7%	39	Connecticut	89	0.4%
14	Michigan	660	2.7%	40	Maine	89	0.4%
15	North Carolina	443	1.8%	41	Nebraska	78	0.3%
16	Wisconsin	440	1.8%	42	Oregon	70	0.3%
17	Virginia	436	1.8%	43	Montana	70	0.3%
18	Maryland	396	1.6%	44	Nevada	64	0.3%
19	Louisiana	387	1.6%	45	South Dakota	48	0.2%
20	Massachusetts	326	1.3%	46	Hawaii	47	0.2%
21	New Jersey	282	1.1%	47	Idaho	37	0.1%
22	Iowa	270	1.1%	48	Rhode Island	14	0.1%
23	South Carolina	266	1.1%	49	Vermont	13	0.1%
24	Mississippi	251	1.0%	50	District of Columbia	11	0.0%
25	North Dakota	214	0.9%	51	Alaska	10	0.0%
26	Oklahoma	194	0.8%				
Canada SO ₂ Total				3,268	13.2%		
U.S. SO ₂ Total				21,470	86.8%		
Canada + U.S. SO ₂ Total				24,737	100.0%		

Sources: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D1. 1990 Canada and U.S. SO₂ Emissions
by Province/States (kilotonnes)**

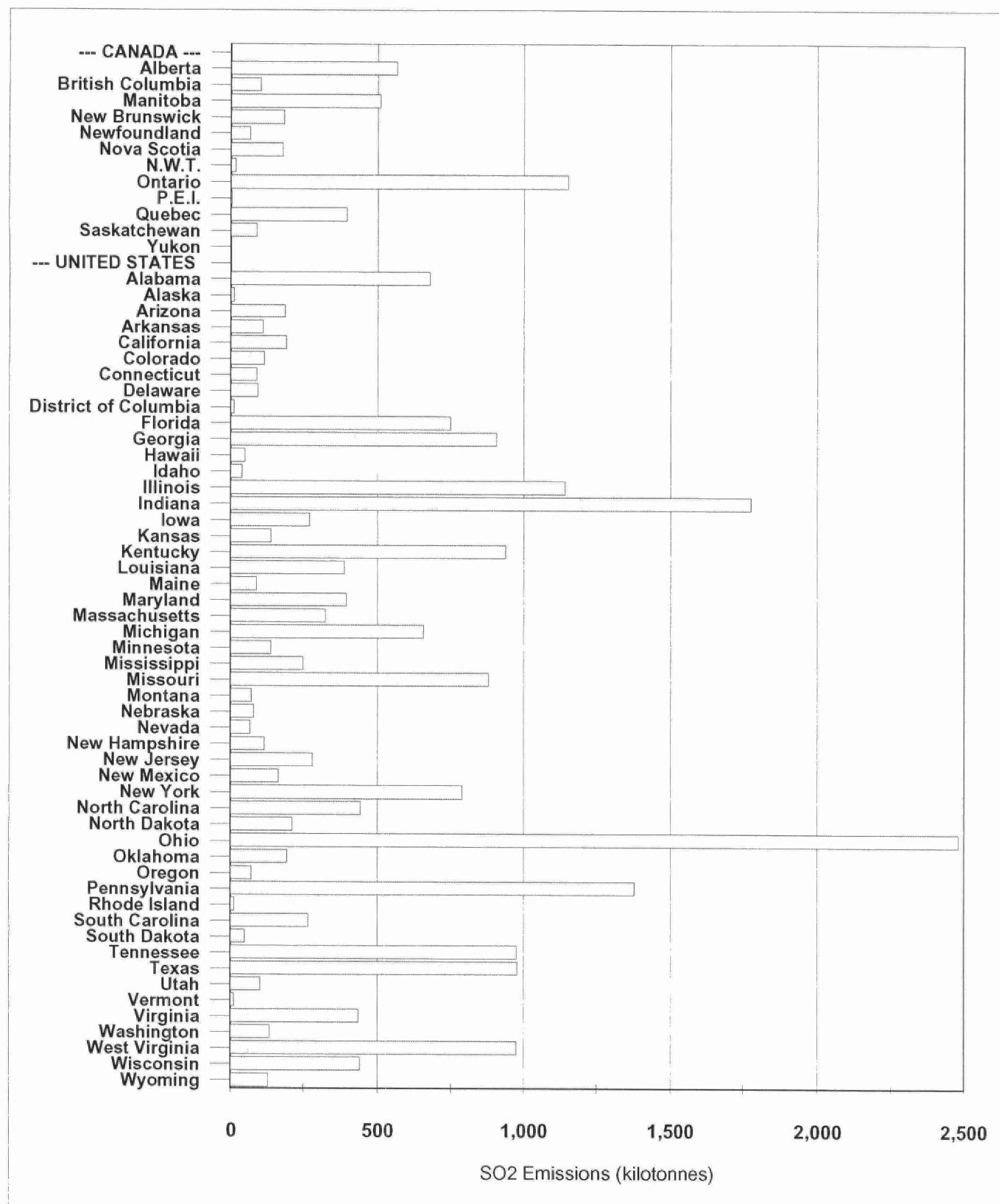


Table D2. 1990 Canada and U.S. NOx Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	NOx	% of Can. + U.S.	RANK	PROVINCE/ STATE	NOx	% of Can. + U.S.
	CANADA				CANADA		
1	Ontario	659	2.8%	7	Nova Scotia	73	0.3%
2	Alberta	487	2.1%	8	New Brunswick	68	0.3%
3	Quebec	301	1.3%	9	Newfoundland	43	0.2%
4	British Columbia	206	0.9%	10	N.W.T.	9	0.0%
5	Saskatchewan	133	0.6%	11	P.E.I.	8	0.0%
6	Manitoba	74	0.3%	12	Yukon	7	0.0%
	U.S.				U.S.		
1	Texas	1,856	7.8%	27	Massachusetts	314	1.3%
2	California	1,432	6.1%	28	Washington	314	1.3%
3	Ohio	1,054	4.5%	29	Colorado	306	1.3%
4	Pennsylvania	980	4.1%	30	Iowa	292	1.2%
5	Illinois	841	3.6%	31	Mississippi	275	1.2%
6	Indiana	825	3.5%	32	New Mexico	243	1.0%
7	Michigan	811	3.4%	33	Wyoming	222	0.9%
8	Florida	799	3.4%	34	Oregon	214	0.9%
9	New York	772	3.3%	35	Arkansas	210	0.9%
10	Louisiana	758	3.2%	36	North Dakota	207	0.9%
11	Tennessee	662	2.8%	37	Utah	186	0.8%
12	Kentucky	615	2.6%	38	Nebraska	182	0.8%
13	Georgia	598	2.5%	39	Connecticut	148	0.6%
14	North Carolina	518	2.2%	40	Montana	131	0.6%
15	West Virginia	517	2.2%	41	Nevada	127	0.5%
16	Virginia	513	2.2%	42	Maine	109	0.5%
17	New Jersey	495	2.1%	43	South Dakota	95	0.4%
18	Alabama	490	2.1%	44	Delaware	94	0.4%
19	Missouri	462	2.0%	45	New Hampshire	82	0.3%
20	Oklahoma	410	1.7%	46	Idaho	82	0.3%
21	Kansas	405	1.7%	47	Alaska	63	0.3%
22	Minnesota	383	1.6%	48	Hawaii	57	0.2%
23	Wisconsin	381	1.6%	49	Vermont	41	0.2%
24	Arizona	325	1.4%	50	Rhode Island	35	0.1%
25	Maryland	324	1.4%	51	District of Columbia	17	0.1%
26	South Carolina	317	1.3%				
		Canada NOx Total	2,065			8.7%	
		U.S. NOx Total	21,590			91.3%	
		Canada + U.S. NOx Total	23,656			100.0%	

Sources: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D2. 1990 Canada and U.S. NO_x Emissions
by Province/States (kilotonnes)**

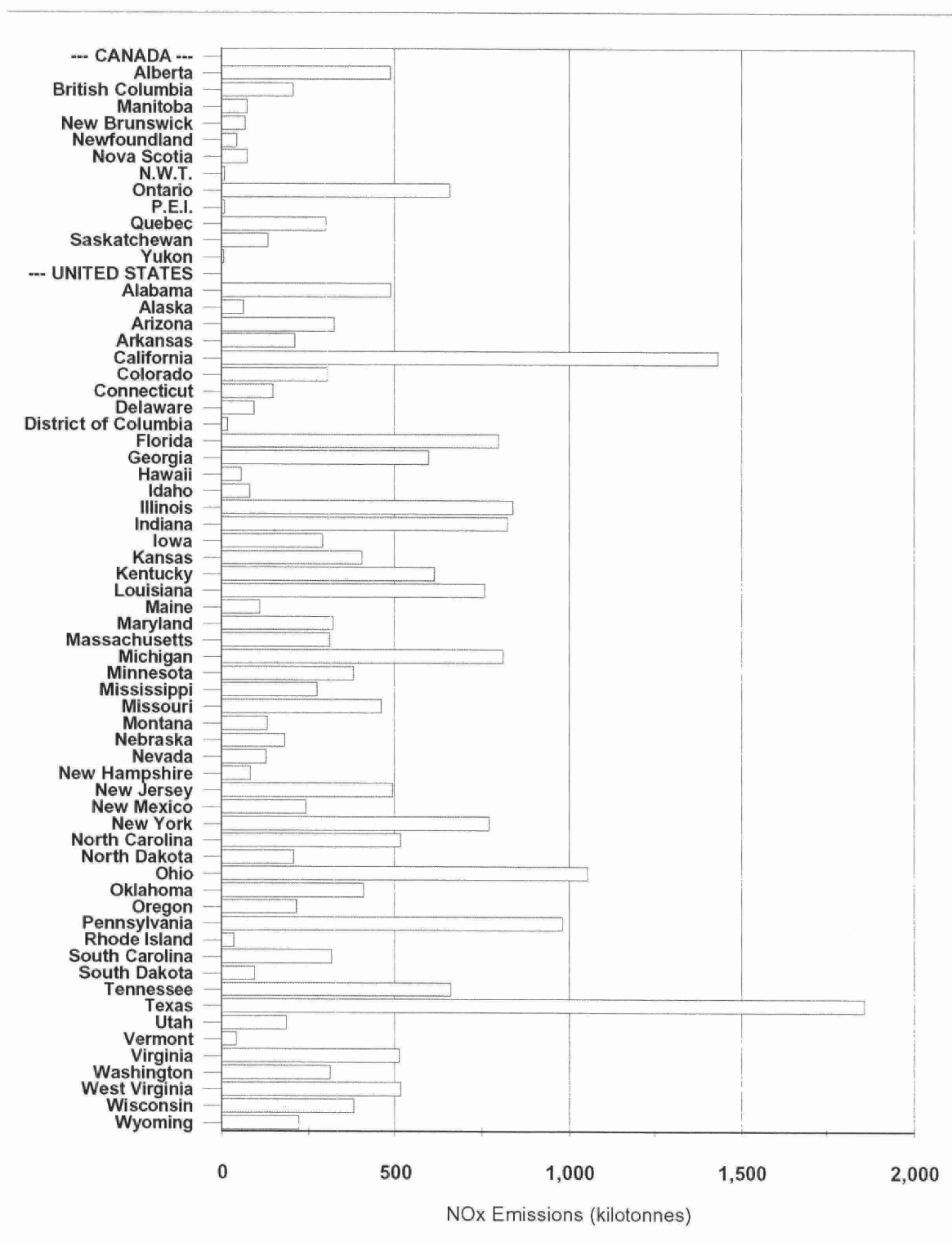


Table D3. 1990 Canada and U.S. VOC Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	VOC	% of Can. + U.S.	RANK	PROVINCE/ STATE	VOC	% of Can. + U.S.
	CANADA				CANADA		
1	Ontario	843	4.1%	7	Nova Scotia	70	0.3%
2	Alberta	638	3.1%	8	Newfoundland	49	0.2%
3	Quebec	400	1.9%	9	New Brunswick	39	0.2%
4	British Columbia	207	1.0%	10	P.E.I.	19	0.1%
5	Saskatchewan	207	1.0%	11	N.W.T.	9	0.0%
6	Manitoba	77	0.4%	12	Yukon	2	0.0%
	U.S.				U.S.		
1	California	1,726	8.3%	27	Maryland	247	1.2%
2	Texas	1,397	6.7%	28	Alaska	243	1.2%
3	New York	910	4.4%	29	Colorado	237	1.1%
4	Florida	804	3.9%	30	Kansas	230	1.1%
5	Michigan	797	3.9%	31	Oregon	216	1.0%
6	Ohio	778	3.8%	32	Iowa	216	1.0%
7	Pennsylvania	743	3.6%	33	Arkansas	205	1.0%
8	Illinois	654	3.2%	34	West Virginia	182	0.9%
9	North Carolina	562	2.7%	35	Connecticut	179	0.9%
10	Virginia	520	2.5%	36	Utah	133	0.6%
11	Tennessee	516	2.5%	37	Nebraska	132	0.6%
12	Indiana	494	2.4%	38	Maine	124	0.6%
13	New Jersey	493	2.4%	39	New Mexico	123	0.6%
14	Georgia	464	2.2%	40	Nevada	88	0.4%
15	Louisiana	420	2.0%	41	North Dakota	84	0.4%
16	Missouri	384	1.9%	42	Idaho	84	0.4%
17	Minnesota	382	1.8%	43	Montana	84	0.4%
18	Washington	361	1.7%	44	New Hampshire	76	0.4%
19	Kentucky	358	1.7%	45	South Dakota	67	0.3%
20	Wisconsin	358	1.7%	46	Wyoming	60	0.3%
21	Alabama	354	1.7%	47	Rhode Island	57	0.3%
22	South Carolina	329	1.6%	48	Delaware	56	0.3%
23	Massachusetts	291	1.4%	49	Hawaii	50	0.2%
24	Oklahoma	285	1.4%	50	Vermont	44	0.2%
25	Mississippi	275	1.3%	51	District of Columbia	20	0.1%
26	Arizona	247	1.2%				
Canada VOC Total				2,560	12.4%		
U.S. VOC Total				18,136	87.6%		
Canada + U.S. VOC Total				20,696	100.0%		

Sources: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D3. 1990 Canada and U.S. VOC Emissions
by Province/States (kilotonnes)**

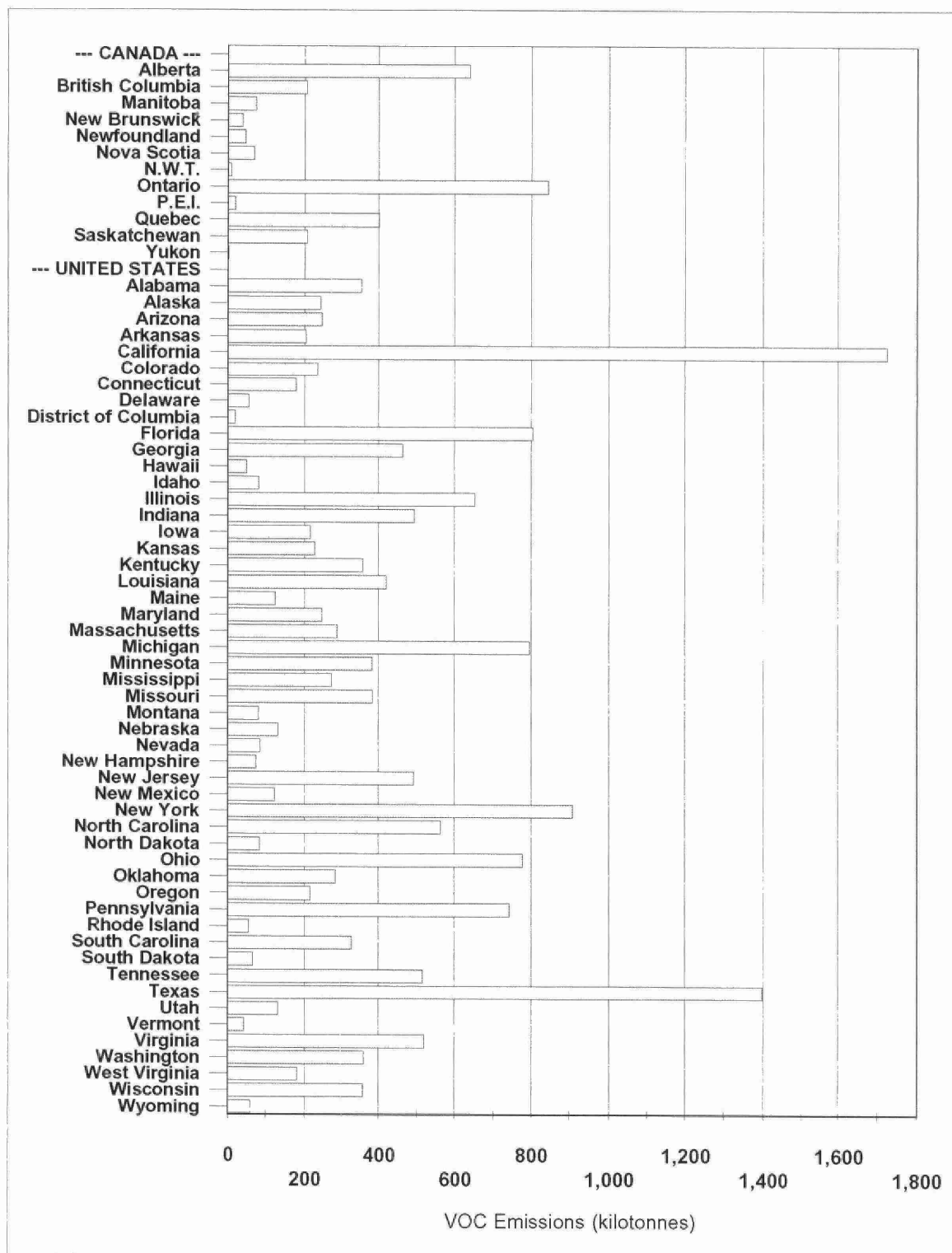


Table D4. 1990 Canada and U.S. CO Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	CO	% of Can. + U.S.	RANK	PROVINCE/ STATE	CO	% of Can. + U.S.
	CANADA				CANADA		
1	Ontario	2,886	3.2%	7	Nova Scotia	323	0.4%
2	Quebec	2,085	2.3%	8	New Brunswick	249	0.3%
3	Alberta	1,306	1.5%	9	Newfoundland	167	0.2%
4	British Columbia	1,261	1.4%	10	P.E.I.	68	0.1%
5	Saskatchewan	661	0.7%	11	N.W.T.	19	0.0%
6	Manitoba	387	0.4%	12	Yukon	15	0.0%
	U.S.				U.S.		
1	California	7,839	8.8%	27	Arizona	1,187	1.3%
2	Texas	5,560	6.2%	28	Oregon	1,164	1.3%
3	Florida	3,989	4.5%	29	Mississippi	966	1.1%
4	Ohio	3,787	4.2%	30	Iowa	938	1.1%
5	Pennsylvania	3,711	4.2%	31	Kansas	938	1.1%
6	New York	3,563	4.0%	32	Arkansas	901	1.0%
7	Michigan	3,200	3.6%	33	Connecticut	821	0.9%
8	Illinois	2,847	3.2%	34	Alaska	783	0.9%
9	Georgia	2,401	2.7%	35	Utah	774	0.9%
10	Virginia	2,199	2.5%	36	New Mexico	769	0.9%
11	North Carolina	2,139	2.4%	37	West Virginia	762	0.9%
12	Indiana	2,100	2.4%	38	Maine	619	0.7%
13	Washington	2,023	2.3%	39	Nebraska	565	0.6%
14	Tennessee	1,873	2.1%	40	Nevada	465	0.5%
15	Louisiana	1,773	2.0%	41	Idaho	440	0.5%
16	Minnesota	1,690	1.9%	42	Montana	409	0.5%
17	New Jersey	1,671	1.9%	43	New Hampshire	395	0.4%
18	Alabama	1,662	1.9%	44	Hawaii	304	0.3%
19	Missouri	1,614	1.8%	45	North Dakota	292	0.3%
20	Wisconsin	1,524	1.7%	46	South Dakota	292	0.3%
21	Massachusetts	1,340	1.5%	47	Rhode Island	260	0.3%
22	Maryland	1,336	1.5%	48	Wyoming	251	0.3%
23	Colorado	1,332	1.5%	49	Delaware	247	0.3%
24	Kentucky	1,292	1.4%	50	Vermont	247	0.3%
25	South Carolina	1,279	1.4%	51	District of Columbia	93	0.1%
26	Oklahoma	1,205	1.3%				
Canada CO Total				9,427	10.6%		
U.S. CO Total				79,831	89.4%		
Canada + U.S. CO Total				89,258	100.0%		

Sources: (1) Environment Canada. February 1996. Canadian Emissions Inventory of Criteria Air Contaminants (1990), EPS 5/AP/7E for the provincial emissions except Ontario.

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D4. 1990 Canada and U.S. CO Emissions
by Province/States (kilotonnes)**

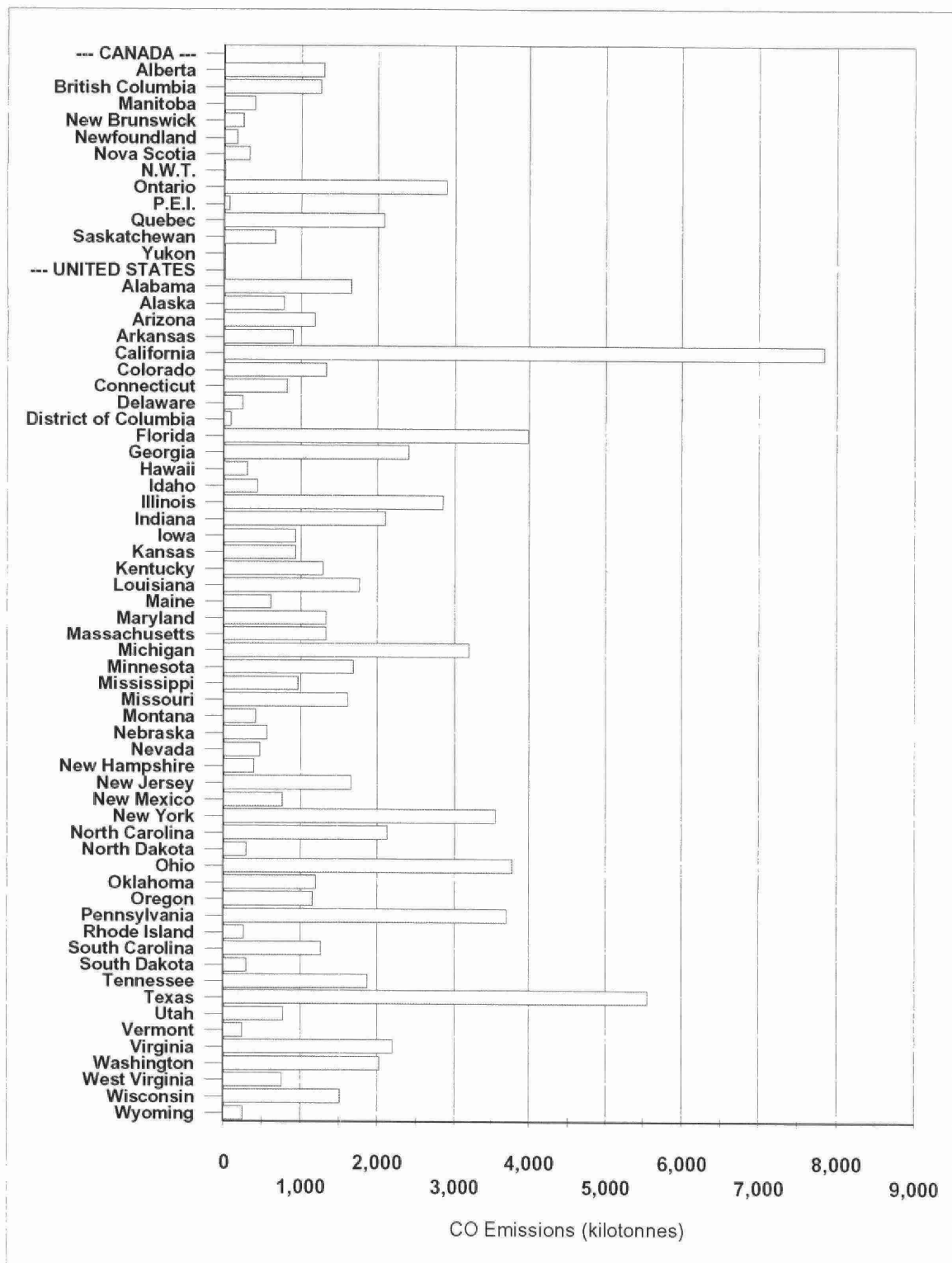


Table D5. 1995 Canada and U.S. SO₂ Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	SO ₂	% of Can. + U.S.	RANK	PROVINCE/ STATE	SO ₂	% of Can. + U.S.
	CANADA				CANADA		
1	Alberta	608	3.1%	7	Saskatchewan	131	0.7%
2	Ontario	601	3.0%	8	New Brunswick	116	0.6%
3	Quebec	374	1.9%	9	Newfoundland	65	0.3%
4	Manitoba	365	1.8%	10	N.W.T.	16	0.1%
5	British Columbia	176	0.9%	11	P.E.I.	3	0.0%
6	Nova Scotia	167	0.8%	12	Yukon	0	0.0%
	U.S.				U.S.		
1	Ohio	1,548	7.8%	27	Arizona	211	1.1%
2	Indiana	1,247	6.3%	28	New Mexico	173	0.9%
3	Pennsylvania	1,208	6.1%	29	Wyoming	162	0.8%
4	Texas	942	4.7%	30	California	162	0.8%
5	Illinois	871	4.4%	31	Kansas	153	0.8%
6	Kentucky	729	3.7%	32	Minnesota	146	0.7%
7	Tennessee	715	3.6%	33	New Hampshire	135	0.7%
8	Florida	709	3.6%	34	Washington	125	0.6%
9	Alabama	674	3.4%	35	Arkansas	121	0.6%
10	West Virginia	634	3.2%	36	Colorado	120	0.6%
11	New York	597	3.0%	37	Nebraska	92	0.5%
12	Georgia	542	2.7%	38	Delaware	89	0.4%
13	Michigan	538	2.7%	39	Maine	74	0.4%
14	Missouri	483	2.4%	40	Utah	72	0.4%
15	North Carolina	465	2.3%	41	Montana	69	0.3%
16	Virginia	454	2.3%	42	Nevada	60	0.3%
17	Wisconsin	331	1.7%	43	South Dakota	57	0.3%
18	Louisiana	313	1.6%	44	Connecticut	56	0.3%
19	North Dakota	302	1.5%	45	Oregon	47	0.2%
20	Maryland	298	1.5%	46	Idaho	35	0.2%
21	Iowa	278	1.4%	47	Hawaii	33	0.2%
22	South Carolina	258	1.3%	48	Vermont	16	0.1%
23	New Jersey	236	1.2%	49	Rhode Island	11	0.1%
24	Massachusetts	217	1.1%	50	Alaska	10	0.1%
25	Mississippi	217	1.1%	51	District of Columbia	10	0.0%
26	Oklahoma	216	1.1%				
Canada SO ₂ Total				2,621	13.2%		
U.S. SO ₂ Total				17,261	86.8%		
Canada + U.S. SO ₂ Total				19,882	100.0%		

Sources: (1) Environment Canada. Pollution Data Branch, December 1998, Version 1

(available at http://www.ec.gc.ca/pdb/ape/cape_home.cfm)

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D5. 1995 Canada and U.S. SO₂ Emissions
by Province/States (kilotonnes)**

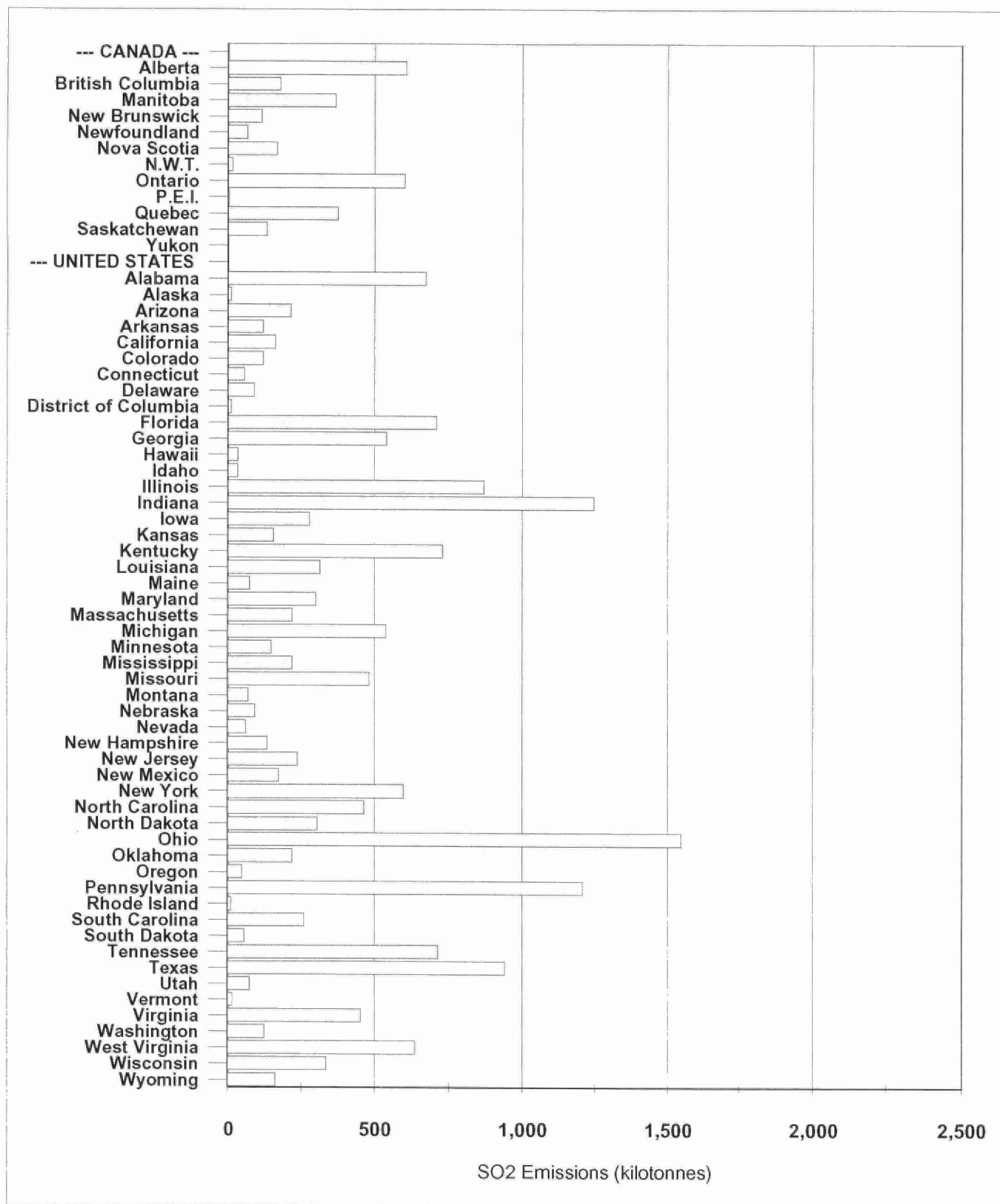


Table D6. 1995 Canada and U.S. NOx Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	NOx	% of Can. + U.S.	RANK	PROVINCE/ STATE	NOx	% of Can. + U.S.
CANADA				CANADA			
1	Alberta	639	2.6%	7	Nova Scotia	73	0.3%
2	Ontario	521	2.1%	8	New Brunswick	63	0.3%
3	Quebec	373	1.5%	9	Newfoundland	43	0.2%
4	British Columbia	260	1.1%	10	N.W.T.	9	0.0%
5	Saskatchewan	169	0.7%	11	P.E.I.	8	0.0%
6	Manitoba	74	0.3%	12	Yukon	5	0.0%
U.S.				U.S.			
1	Texas	1,795	7.3%	27	Washington	327	1.3%
2	California	1,463	6.0%	28	Iowa	322	1.3%
3	Ohio	1,127	4.6%	29	Maryland	300	1.2%
4	Illinois	980	4.0%	30	Mississippi	286	1.2%
5	Pennsylvania	931	3.8%	31	Massachusetts	268	1.1%
6	Florida	912	3.7%	32	Wyoming	250	1.0%
7	Indiana	844	3.4%	33	New Mexico	245	1.0%
8	Michigan	809	3.3%	34	Arkansas	241	1.0%
9	Tennessee	772	3.1%	35	North Dakota	235	1.0%
10	Kentucky	675	2.8%	36	Nebraska	221	0.9%
11	Louisiana	663	2.7%	37	Oregon	215	0.9%
12	New York	663	2.7%	38	Utah	194	0.8%
13	Georgia	612	2.5%	39	Montana	141	0.6%
14	North Carolina	600	2.4%	40	Connecticut	139	0.6%
15	Virginia	560	2.3%	41	Nevada	131	0.5%
16	Alabama	558	2.3%	42	South Dakota	100	0.4%
17	Missouri	473	1.9%	43	Maine	95	0.4%
18	West Virginia	461	1.9%	44	Idaho	91	0.4%
19	Kansas	460	1.9%	45	New Hampshire	84	0.3%
20	Wisconsin	440	1.8%	46	Delaware	76	0.3%
21	Oklahoma	439	1.8%	47	Hawaii	55	0.2%
22	New Jersey	434	1.8%	48	Alaska	54	0.2%
23	Minnesota	432	1.8%	49	Vermont	44	0.2%
24	Arizona	360	1.5%	50	Rhode Island	31	0.1%
25	Colorado	355	1.4%	51	District of Columbia	17	0.1%
26	South Carolina	331	1.3%				
Canada NOx Total				2,236	9.1%		
U.S. NOx Total				22,312	90.9%		
Canada + U.S. NOx Total				24,548	100.0%		

Sources: (1) Environment Canada. Pollution Data Branch, December 1998, Version 1

(available at http://www.ec.gc.ca/pdb/ape/cape_home.cfm)

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D6. 1995 Canada and U.S. NO_x Emissions
by Province/States (kilotonnes)**

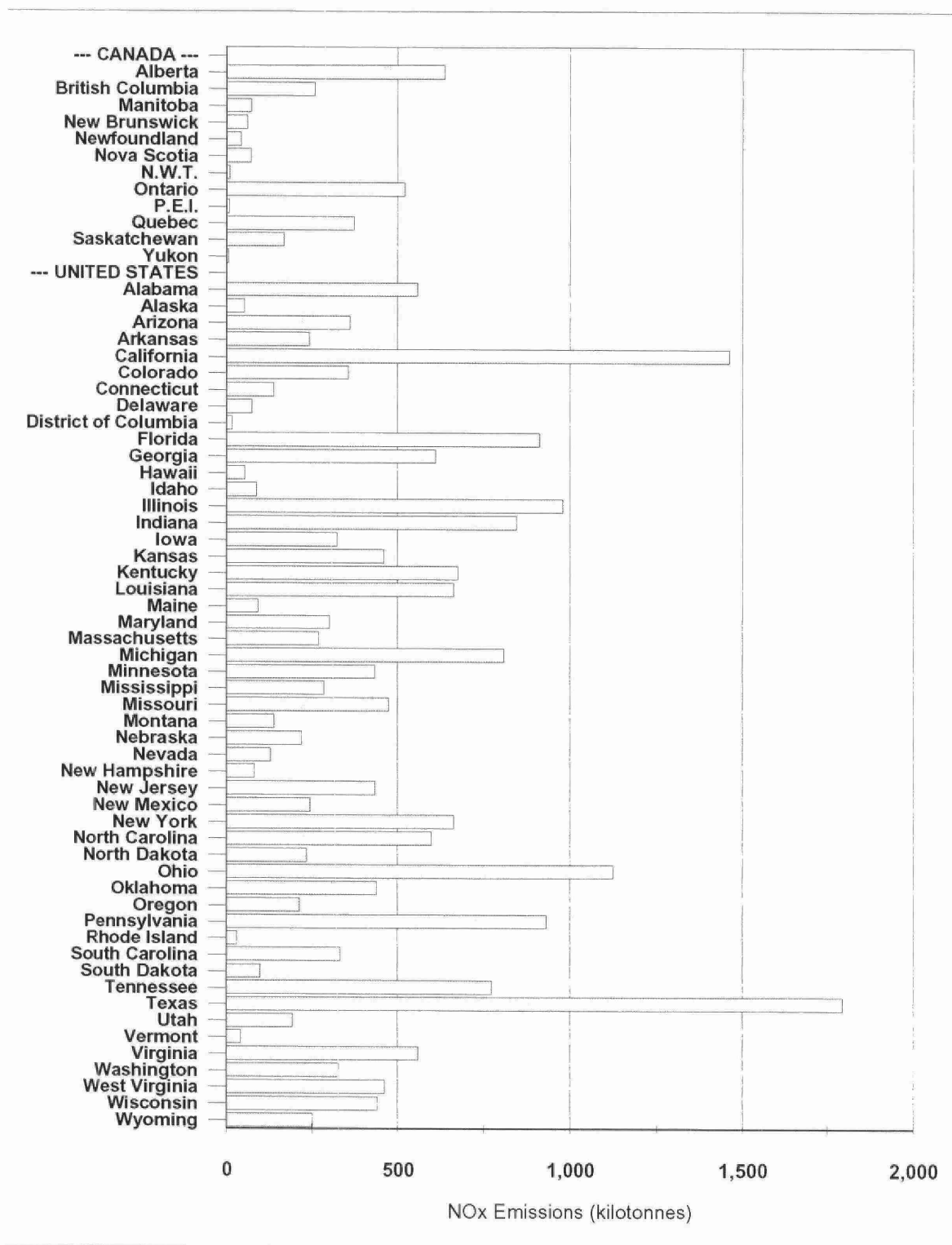


Table D7. 1995 Canada and U.S. VOC Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	VOC	% of Can. + U.S.	RANK	PROVINCE/ STATE	VOC	% of Can. + U.S.
	CANADA				CANADA		
1	Alberta	701	3.3%	7	Nova Scotia	79	0.4%
2	Ontario	700	3.3%	8	New Brunswick	65	0.3%
3	Quebec	445	2.1%	9	Newfoundland	53	0.3%
4	British Columbia	235	1.1%	10	N.W.T.	15	0.1%
5	Saskatchewan	221	1.1%	11	P.E.I.	10	0.0%
6	Manitoba	85	0.4%	12	Yukon	3	0.0%
	U.S.				U.S.		
1	California	1,655	7.9%	27	Arizona	244	1.2%
2	Texas	1,457	7.0%	28	Alaska	240	1.1%
3	Florida	808	3.9%	29	Maryland	236	1.1%
4	Ohio	792	3.8%	30	Kansas	235	1.1%
5	New York	781	3.7%	31	Iowa	227	1.1%
6	Michigan	750	3.6%	32	Arkansas	220	1.0%
7	Pennsylvania	749	3.6%	33	Oregon	208	1.0%
8	Illinois	743	3.5%	34	West Virginia	176	0.8%
9	North Carolina	572	2.7%	35	Connecticut	172	0.8%
10	Indiana	548	2.6%	36	Nebraska	158	0.8%
11	Tennessee	540	2.6%	37	Utah	149	0.7%
12	Virginia	499	2.4%	38	New Mexico	130	0.6%
13	Georgia	497	2.4%	39	Maine	121	0.6%
14	New Jersey	468	2.2%	40	Nevada	96	0.5%
15	Washington	401	1.9%	41	Idaho	89	0.4%
16	Wisconsin	397	1.9%	42	North Dakota	87	0.4%
17	Louisiana	395	1.9%	43	Montana	86	0.4%
18	Alabama	394	1.9%	44	New Hampshire	75	0.4%
19	Missouri	392	1.9%	45	South Dakota	69	0.3%
20	Kentucky	383	1.8%	46	Wyoming	64	0.3%
21	Minnesota	373	1.8%	47	Delaware	53	0.3%
22	South Carolina	334	1.6%	48	Rhode Island	52	0.2%
23	Mississippi	288	1.4%	49	Hawaii	50	0.2%
24	Oklahoma	287	1.4%	50	Vermont	46	0.2%
25	Massachusetts	282	1.3%	51	District of Columbia	19	0.1%
26	Colorado	260	1.2%				
Canada VOC Total				2,612	12.5%		
U.S. VOC Total				18,344	87.5%		
Canada + U.S. VOC Total				20,956	100.0%		

Sources: (1) Environment Canada. Pollution Data Branch, December 1998, Version 1

(available at http://www.ec.gc.ca/pdb/ape/cape_home.cfm)

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

**Figure D7. 1995 Canada and U.S. VOC Emissions
by Province/States (kilotonnes)**

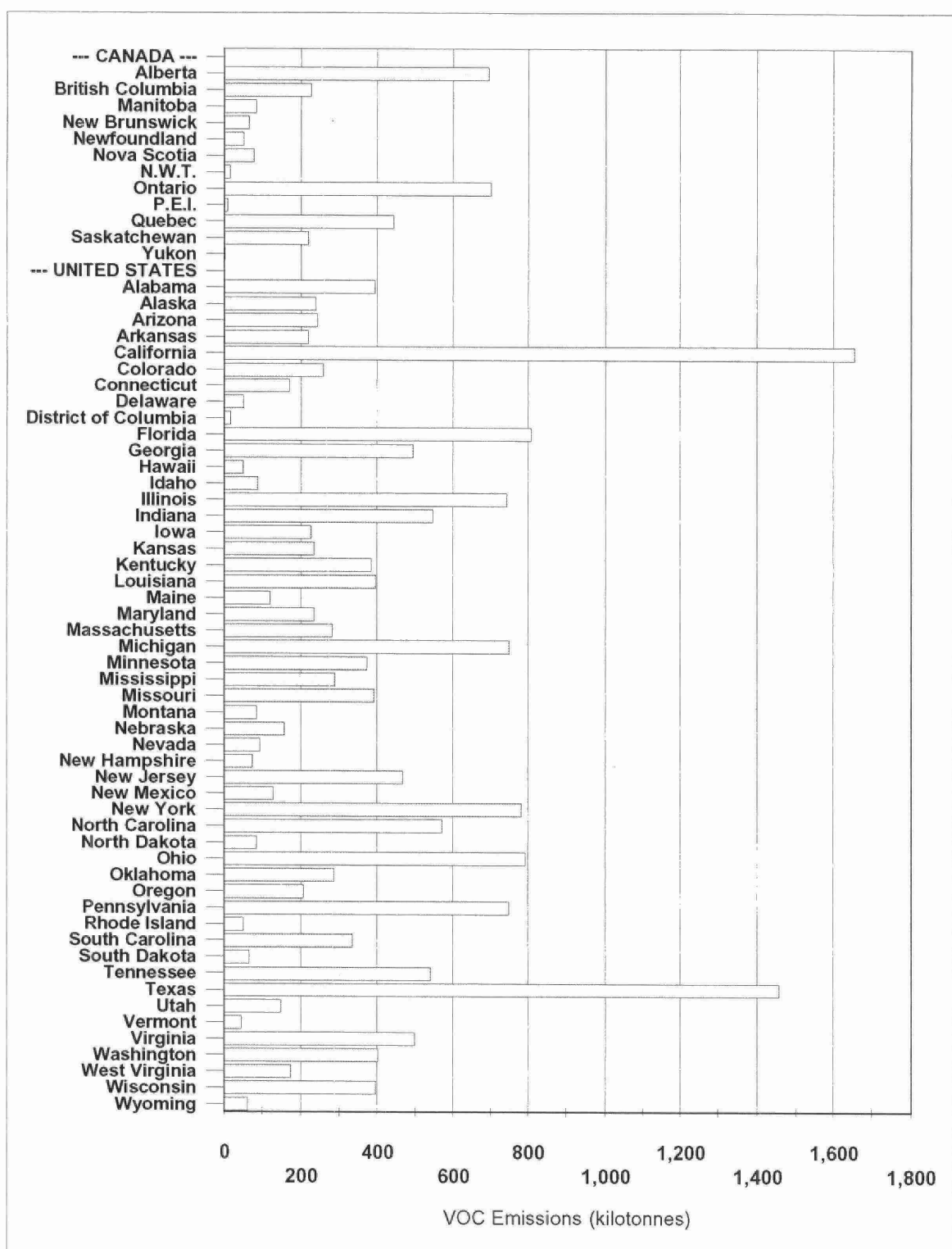


Table D8. 1995 Canada and U.S. CO Emissions by Province/States (kilotonnes)

RANK	PROVINCE/ STATE	CO	% of Can. + U.S.	RANK	PROVINCE/ STATE	CO	% of Can. + U.S.
	CANADA				CANADA		
1	Ontario	2,494	2.8%	7	New Brunswick	323	0.4%
2	Quebec	2,171	2.5%	8	Nova Scotia	316	0.4%
3	Alberta	1,553	1.8%	9	Newfoundland	236	0.3%
4	British Columbia	1,449	1.6%	10	P.E.I.	54	0.1%
5	Saskatchewan	549	0.6%	11	N.W.T.	17	0.0%
6	Manitoba	447	0.5%	12	Yukon	14	0.0%
	U.S.				U.S.		
1	California	7,446	8.5%	27	Arizona	1,067	1.2%
2	Texas	5,135	5.8%	28	Mississippi	1,047	1.2%
3	Florida	4,287	4.9%	29	Oregon	1,017	1.2%
4	Ohio	4,164	4.7%	30	Iowa	991	1.1%
5	Pennsylvania	3,441	3.9%	31	Arkansas	991	1.1%
6	New York	3,128	3.6%	32	Kansas	952	1.1%
7	Michigan	2,996	3.4%	33	West Virginia	805	0.9%
8	Georgia	2,769	3.1%	34	Utah	794	0.9%
9	Illinois	2,765	3.1%	35	Alaska	782	0.9%
10	Indiana	2,373	2.7%	36	Connecticut	720	0.8%
11	North Carolina	2,212	2.5%	37	New Mexico	699	0.8%
12	Virginia	2,069	2.4%	38	Nebraska	601	0.7%
13	Tennessee	1,992	2.3%	39	Maine	582	0.7%
14	Alabama	1,818	2.1%	40	Idaho	465	0.5%
15	Washington	1,785	2.0%	41	Nevada	457	0.5%
16	Louisiana	1,659	1.9%	42	Montana	404	0.5%
17	Missouri	1,655	1.9%	43	New Hampshire	376	0.4%
18	Wisconsin	1,594	1.8%	44	Wyoming	318	0.4%
19	Minnesota	1,487	1.7%	45	Hawaii	306	0.3%
20	New Jersey	1,397	1.6%	46	North Dakota	305	0.3%
21	Kentucky	1,369	1.6%	47	South Dakota	296	0.3%
22	South Carolina	1,331	1.5%	48	Vermont	249	0.3%
23	Oklahoma	1,263	1.4%	49	Delaware	211	0.2%
24	Colorado	1,181	1.3%	50	Rhode Island	205	0.2%
25	Massachusetts	1,158	1.3%	51	District of Columbia	79	0.1%
26	Maryland	1,136	1.3%				
Canada CO Total				9,624	10.9%		
U.S. CO Total				78,330	89.1%		
Canada + U.S. CO Total				87,954	100.0%		

Sources: (1) Environment Canada. Pollution Data Branch, December 1998, Version 1

(available at http://www.ec.gc.ca/pdb/ape/cape_home.cfm)

(2) Ontario Ministry of the Environment, Emission Inventory Group, for Ontario emissions.

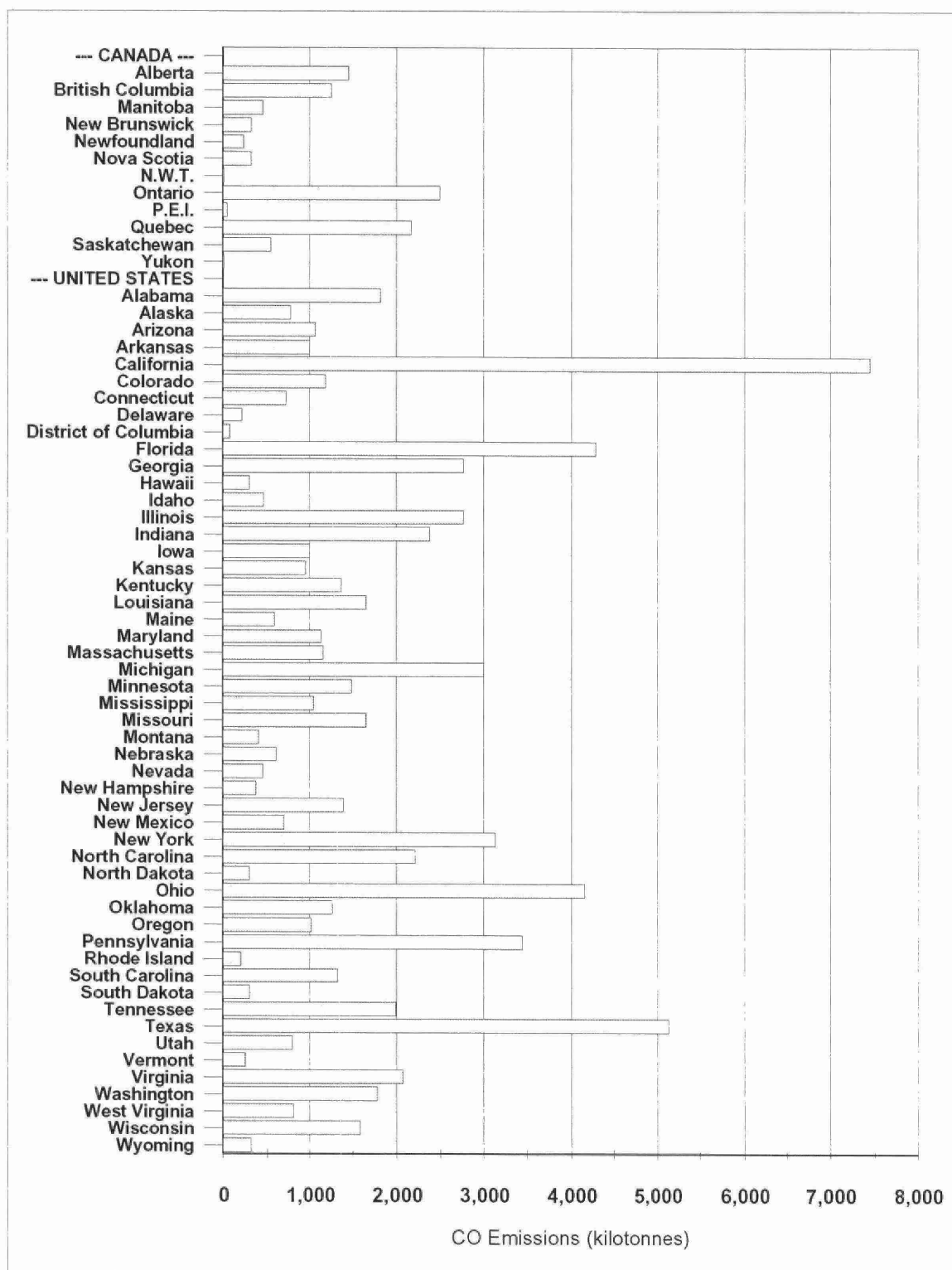
(3) U.S. EPA's "National Emission Trends (NET)" in AirData database, 5 October 2001 version, for U.S. emissions

Note: Emissions from open sources are not included.

Tier1 category "14-Miscellaneous" emissions are not included in the U.S. state totals.

The sums of Canadian provinces and the U.S. states may not equal totals due to rounding.

Figure D8. 1995 Canada and U.S. CO Emissions
by Province/States (kilotonnes)



This page is intentionally left blank.